MANAGEMENT AND TRAINING

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MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

SWISS RAILWAY DEVELOPMENT

See Page 15

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CURRENT TOPICS

T.U.C. and Unofficial Strikes

WITH the unabated continuance of industrial troubles it is satisfactory to note that the T.U.C. inquiry into unofficial strikes and shop stewards' activities is to begin on November 16. The committee to examine these problems, under the chairmanship of Sir Tom Williamson, general secretary of the National Union of General and Municipal Workers, will consist of the 18 members of the T.U.C. General Council who constitute the union side of the Minister of Labour's National Joint Advisory Council. Compensation for what may appear at first sight an unwieldy body, and one which may therefore tend to prolong proceedings, lies in its representative nature, covering—as it does—a wide range of important industries. The terms of reference are fairly wide but nevertheless vague—to make "an examination of the broad problems of industrial disputes, workshop representatives and related matters." Meanwhile condemnation by trade union leaders of wild-cat strikes seems now fairly general; Mr. Frank Cousins summed up the situation in a speech over the weekend when he pointed out that the strike weapon lost its value when used wildly. "You can cry 'wolf' till no one takes any notice of you," he said. Unfortunately, so far as transport is concerned, the public is forced to take notice as invariably it suffers the full impact of stoppages in any branch of that industry.

Dining Car Strike Repercussions

THE dining car strike is a case in point. Those who suffer most are regular travellers, and particularly businessmen, who may not have time to get a meal before or after a journey; and yet it is this sort of influential traffic (most susceptible to the conveniences of the private car) which, if they are to survive, the railways must attract in ever-increasing volume. Indeed, the proposed extension of Pullman services, to which the men are said to object, is designed with this aim in view. As Mr. S. F. Greene, the N.U.R. general secretary, remarked last week on television, the increased traffic likely to accrue would be of immediate advantage to those who are now refusing to be bound by agreements entered into by their leaders. Considering that restaurant cars are invariably run at a loss—the 1958 deficit was £700,000—the B.T.C. is not too adversely affected, although the loss to the railways in public goodwill may be serious. It is to be hoped that the T.U.C. inquiry into the whole problem of industrial disputes may have early and beneficial effect. But the real remedy must surely lie in strong action by individual union executives against those who stir up trouble and encourage the rank and file to flout their accredited leaders. Managements themselves are not always blameless; disputes in some cases might be saved from wider significance if greater care were taken to nip them in the bud.

Advanced Automobile Engineering

AN advanced School of Automobile Engineering is to be established with the object of providing instruction at post-graduate level in engineering in relation to the needs of the motor indusry. The school, which is sponsored and supported by the Society of Motor Manufacturers and Traders, the Automobile Division of the Institution of Mechanical Engineers and the Ministry of Education, will be located at Cranfield, Bedfordshire, and will work in close association and in co-operation with the College of Aeronautics. It will be residential. The principal educational activity of the school will be the provision of a one-year postgraduate course comprising lectures and laboratory work for men who have had experience in industry. A student body numbering about twenty is envisaged for this course, but additional short courses will be organised from time to time. The director will be assisted by a full-time academic staff with the necessary secretarial and technical assistance. Once this new educational enterprise has come into full operation a selected number of young engineers of high quality and creative ability will regularly re-enter the industry from the school, better equipped to further the progress of motor engineering and able ultimately to occupy key technical posts with their companies.

More Diesel Locomotives for C.I.E.

ANOTHER step in the extension of diesel traction on the C.I.E. railway system is indicated by the announcement that tenders are being sought for the supply of a further 36 diesel locomotives, 14 sets of diesel engines and certain transmission equipment. The new diesel locomotives will be used principally for the replacement of steam on that portion of the line formerly operated by the Great Northern Railway Board and also for the haulage of seasonal freight and livestock traffic. They are also required for shunting and transfer purposes in marshalling yards and on certain branch lines where steam traction is still being employed. The standards of service have greatly improved and running times for most passenger and freight trains reduced since the dieselisation programme was introduced. The total diesel motive power at present is made up of 139 locomotives and 93 diesel rail cars, while about 75 per cent of the steam locomotives have been scrapped. Diesel traction now covers more than 150,000 miles per week as compared with about 6,000 miles operated by steam which increases to over 18,000 miles per week during the beet and other special peak traffic campaigns. The saving in fuel and operating costs by the substitution of diesel traction is estimated at about £1½ million annually. The ultimate object is to eliminate steam from the C.I.E. railways.

Signal Engineers Today

PAINTING the signal engineer's manifold part in modernisation at the delightful annual dinner and dance of the Institution of Railway Signal Engineers last week, Mr. David Blee, general manager of the London Midland Region, said the high standards set by the Institution justified the importance attached to the signal and telecommunications engineer in the plan. That would remain for many years. It was not a case of a four-year peak and then a drop back to subnormal. On the Euston—Crewe main line the minimum essential was being done on signalling for the time being; after electric traction began there would be a backlog of other desirable work to be done if the railway efficiency was to be at a maximum. Further electrification, moreover, would assuredly follow. There would be an immense opportunity to secure further substantial improvement and economy; but that would depend largely on his audience to prove to the government it was a worthwhile object and a sound investment. It would constitute for many years to come a challenge to the signal engineering industry and those who served it. The Institution, whose wellbeing he toasted, had an invaluable work to perform in bringing forward graduates of the right calibre.

Status of the Institution

RESPONDING, Mr. D. G. Shipp, the president, said all the members were involved in the immense task of modernisation, 60 per cent of which was in the L.M. Region. What were they doing to be worthy of their responsibilities? Staff training and education were close to their hearts; their status was recognised at home and abroad—they were no longer the Cinderella of the engineering profession; and they had 244 students, of whom 17 sat for the 1959 examinations, including one in Australia. There was no regular technical college course of training and young men had to go the hard way, learning the job on the job. Their lectures which had been produced as 13 booklets no longer covered modern developments, so 11 were being added and he thanked those who were carrying out the task. Their motto was "I bear a far-shining light" and it was one they would like to share with every Britisher who was improving the prestige and economy of his country. Mr. W. Owen (a vice-president) proposed "The Visitors" and Sir Kenneth Pickthorn, Bart., M.P., responded.

Progress with Plastics Foams

CLAIMED to be the largest plastics foaming plant in Europe, the factory of Aeropreen Products, Limited, at High Wycombe, is now in full production with polyether. Originally laid down in 1956 for the manufacture of polyester foams, the plant has now been successfully adapted for the large-scale production of polyether, which it produces at the rate of four tons an hour in the form of a continuous slab up to two metres in width. Polyether is derived from petroleum and is deemed superior to the earlier plastics foams, although it does not differ from them in appearance. In particular it has greater softness, smoother texture and better recovery. It also costs from 20 to 25 per cent less, and weighs only half as much as latex-based equivalents. Its hardness, density and tensile strength can be accurately controlled, whilst production is simplified by the fact that it is cut to shape and size, thus obviating the expense involved in moulding. These factors have had a wide appeal in markets where cost and lightness are important, and already some 50 per cent of the total output is absorbed by the transport industry for fillings, paddings and upholstery. Even in the short space of three years the pattern of production has changed radically from toys and soft goods to the needs of industry, and new ideas are constantly under review. Latest of these is the use of offcuts—the waste from cutting—which is now granulated and mixed with the normal product to make a firmer and more resistant material especially suitable for edging upholstered units. The ultimate possibilities of this new material are enormous, and it may well be that within a short space of time it will dominate many of the fields that are now the province of latex foam.

British Conference on Electrification

BRITISH inventive enterprise and imagination in adapting the 50-cycle 25,000-volt single-phase electric traction system to the needs of the densely occupied railways, of comparatively restricted loading gauge, in this country will be demonstrated to the world next autumn at a conference which is being organised in London by the British Transport Commission. The British Railways Electrification Conference, 1960, will be accompanied by an exhibition at Battersea in which the new and revolutionary developments put forward by British Railways and the electric traction, signalling and rolling stock industries of Great Britain will be demonstrated. The event will be marked by a special issue of MODERN TRANSPORT devoted to this important subject. Evidence of British fertility in invention, design and adaptability will also be forthcoming in the inspections of works which are to be arranged for those interested during the conference, which will take place early in October. The headquarters will be at the Institution of Civil Engineers and it is expected that between 300 and 400 delegates will attend. The occasion should thus afford not only an opportunity of showing what Britain can do but also of exchanging valuable experience with those from many other countries.

Viscount Montgomery on "Transport"

TRENCHANT as he has always been, Viscount Montgomery was the guest of honour at the Institute of Transport anniversary luncheon this week. As on many other subjects, this distinguished soldier has decisive views on transport, and he did not hesitate to express them—not, he remarked, that they were likely to be heeded. Transport of all kinds had come under his command during the war; immediately responsible for it in North Africa was General Sir Brian Robertson and, in the advance on Berlin, Major-General L. Wansbrough-Jones, both of whom were present. In fact, "Overlord" had meant the movement across the Channel of 250,000 men and 40,000 vehicles, and in six days the lines of communication had extended to 250 miles. Experience at that time had shown that transport—civilian and military—was indivisible; centralised control of movements was found to be absolutely vital and the application of that principle would have to be observed in future wars. Could not we benefit from these wartime lessons? To use transport economically and to make each agency carry the traffic for which it was best suited were basic principles. The need for a comprehensive outlook was essential today; road and rail could surely live side by side without trying to cut one another's throats. Where was the grand design? Where was the master plan? The same sentiments, the Field Marshal said, had been voiced by the Institute's first president, Sir Eric Geddes, 39 years ago, and yet matters were still much as they were. Preoccupied over the years with military studies and strategy this great leader, who also spoke incisively of war diaries, is perhaps unaware of the spate of legislation and controls which have in fact developed in that time. There is no doubt, however, that we have reached the stage when the whole problem must be examined afresh, and no doubt his views are shared by many distinguished laymen.

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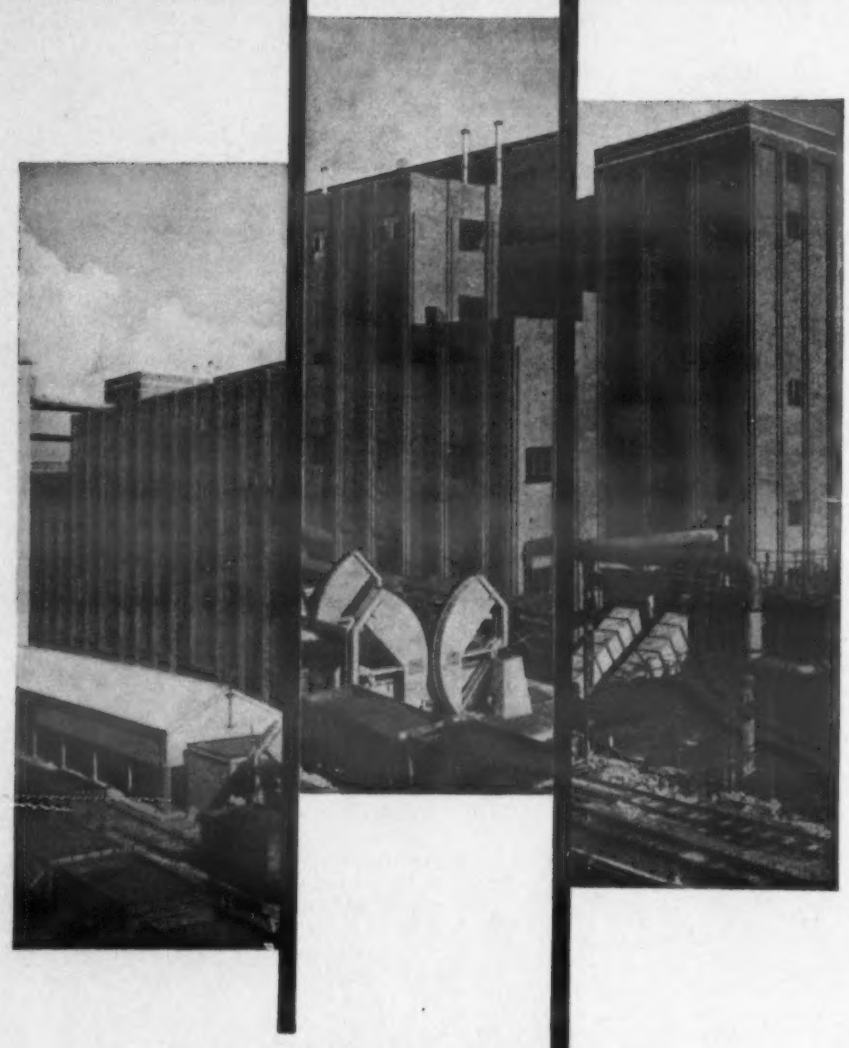

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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

★

Management

TWO remarkable papers on management were read last week. One had particular reference to selection and training for management on the railways and constituted Mr. H. C. Johnson's presidential address to the Railway Students' Association; the other, the fifth Elbourne Memorial Lecture organised by the British Institute of Management, was by Mr. Harold Wilmot, chairman of the Beyer Peacock group and vice-president of the Institute; under the title of "The Management Burden," he ranged widely with wit and acumen in a penetrating survey of the problems of directing business and industry. Mr. Johnson, who is general manager of the Eastern Region of British Railways, has a fervent belief in the duty of those who control staff to take a live personal interest in their selection, training and development and to plan far ahead to ensure a continuity of good candidates for posts at each level. Day-to-day delegation of the application of an officer's policies is essential, but people are more important than things and the chief must have his staff in mind as his first responsibility. This personal responsibility cannot be neglected because on the railway, as in other large undertakings, the boss, sooner or later, is only as good as or as bad as the men he employs. He particularly emphasised the need for interest to be shown in a man in the early stages of training by the immediate chief—agent, station, yard or depot master, or section chief. Further, there is a vital necessity to plan the careers of selected men to overcome the shortage of outstanding characters between the ages of 35 and 50, an aftermath of the war.

Recruitment

IN the competition for promising young men Mr. Johnson feels—and all too rightly—that the railways are adversely affected by the widely held opinion that they are a back number in the life of the nation. Modernisation achievements should help to dispel that unfortunate view. The attractions of a railway career are in fact better than before the war and are steadily improving. A new approach to the school-leaver to make known the attractions and opportunities of a railway career and how men of almost every profession are needed. The old family tradition of railwaymen might be stimulated anew. There should be close contact with the schools in all this and in as many schools as possible representatives should make known the facts of a railway career; their enthusiasm and experience must be such as to carry conviction. Without overlooking the virtues of the advertisement system in seeking possible management material, there must be a constant search among outside staff to find young men—or women—of real merit who have not entered the clerical grades. Besides the recruitment to the traffic apprentice scheme of men from the railway service via the Royal Society of Arts examination and of University graduates, Mr. Johnson suggested appointment of first-class lads from public and grammar schools with the necessary qualities of spirit and leadership. Great care in the reception of new entrants to the service and the widening of railway traffic training to include engineering, road haulage and bus experience were among other excellent points put forward.

The Burdens

WHAT of the man who has arrived at the top? In passing, Mr. Wilmot criticised the pictures of a tycoon, so distorted as to be unrecognisable, familiar on the radio, the screen and in the popular press; perhaps because men of high authority are seldom skilled in the techniques of personal advertisement—and many believe it "inappropriate to equip themselves with a brass band when going duck shooting." Such distortions nevertheless might add to the other burdens of management; sooner or later there must be an attempt directed to the alleviation of malaise due to those burdens. He dealt with the necessity to think and plan (in the special way needed for management), to manage (even if that sounded trite), to inspire (the essence of true leadership), the duty to reward or punish (most onerous of all), and to replace and renew (where he came to the ground covered with special reference to railways by Mr. Johnson). The most expensive and most burdened of all industrial equipment was the manager. Many found great strain in switching from current problems to become chairman of a study group peering into the obscurities of the future. To change thus from the active to the passive was a burden that varied widely with circumstances and depended on the degree of functional division in an organisation. Informed, logical, constructive, practical, visionary thought is said to be the most difficult of all human tasks, but one which industrial routine lays on the shoulders of management. If ways of relieving the strain could be found, they would result in good managers performing with equal merit over a longer period with greater comfort. As to the art of management itself, comprehensive self-discipline was needed in the interest of authority and example. Management often had to contend with owner indiscipline through those who did not attend meetings of their company and on the other hand with the indiscipline of wildcat strikers and others who did not abide by the rules of their union. The freedoms of Western democracy did not mean the law of the jungle and no government could expect respect if it permitted any section of the community to defy the law and not to suffer the appropriate penalty. We must, however, get our thinking and our laws right first.

Virtues of Swift Action

MORE than half of the industrial disputes appeared completely irrational and unnecessary, declared Mr. Wilmot. He had a great regard for the essential integrity of both the manager and the industrial craftsman. What irritated the latter to exasperation was delay (and inferred indifference) in dealing with complaints. If individual complaints could not be settled on the way up to management they should come to the notice of the chief executive within 24 hours of origination. Authority for settlement must be delegated as far down the scale as possible. The benefit of the doubt should be conceded in border-line cases and error, if detected, freely apologised for. Injustice or unnecessary hardship could fester, whereas open evidence of speedy rough justice, seen to be in action without prejudice or rancour, made for good relations and reinforced the authority of management. To be 80 per cent just with speed was far more meritorious than to be 90 per cent right too late—and was more difficult and burdensome. To inspire others is the essence of true leadership; intense personal conviction is needed and, indeed, dynamic management needs the vigour and confidence of youth, as well as serenity. Those who do not possess these attributes should step aside. The lecturer also emphasised the need for mastery of the art of communication—clear and concise language and means of ensuring receipt and appreciation of information, if possible by the leap-frog system—by official explanation to immediate subordinates and informally to the next step down the line. Punishment was a burden to sensitive management; but there must be hatred of injustice, evidence of the integrity of the manager, swift penalty, the benefit of the doubt, and mercy. In rewards it was well to remember that "he gives twice who gives soon." In respect of training for management Mr. Wilmot stressed the need for educational authorities and career advisers to be convinced of the high standard of management ethics. In this need for educating the educationists, and indeed the informed public, Mr. Wilmot's general industrial problem merges with Mr. Johnson's railway problem. Both are appreciably nearer solution through their clear exposition in these two masterly addresses.

NEWS SUMMARY

THE largest British liner to be launched since the 1939-45 war was launched by H.R.H. Princess Alexandra at the Barrow yard of Vickers-Armstrongs (Shipbuilders), Limited, on November 3. The *Oriana*, of 40,000 tons, should reduce the length of voyage between Britain and Australia by a week.

On November 1 Aer Lingus concentrated all its check-in formalities at Dublin Airport. There is still an airport bus operating between the airport and the erstwhile city air terminal.

The Secretary of State for Scotland has authorised acceptance by Glasgow Corporation of a tender of £3,900,000 for the second of the road tunnels under the Clyde from Whiteinch and Linthouse.

Field Marshal Viscount Montgomery of Alamein, addressing the fortieth anniversary luncheon of the Institute of Transport, urged the need for the proper co-ordination of road and rail under an overall plan. See page 11.

The fourth stage of the London Transport trolleybus replacement programme is scheduled to take place on November 11. Details of the plan appear on page 13 and show that Bloomsbury and Barking, inter alia, will lose their trolleybuses.

Three orders have been announced for jet air liners. C.M.A., the Mexican associate of Pan American World Airways, is to have de Havilland Comet 4Cs, while Canadian Pacific Airlines and Iberia are to have Douglas DC8s, the former with Rolls-Royce Conway and the latter with Pratt and Whitney engines. See page 11.

TRAINING FOR THE RAILWAY SERVICE

Importance of Proper Reception

*By H. C. JOHNSON, O.B.E., M.Inst.T., General Manager, Eastern Region, British Railways**

THE way in which young people are received into the railway service is most important; this is not always appreciated. A new member of the staff must be made welcome by someone who believes that the recruit has done the right thing in joining our industry and who can communicate to him this assurance of confidence. The message should include guidance on three most important aspects, namely:

(*a*) His—or her—place in the local scheme of things;
(*b*) what all this railway business is about, and particularly how it works;
(*c*) the types of career which are open, and how he—or she—should go about shaping his future.

It would be a good idea to have simple and interesting booklets to cover point (*b*), i.e what the railways are doing and prepared to meet the needs of the different type of entrant, for what might appeal to some might make little or no impression on others. Absence of a general knowledge of the undertaking as a whole leads inevitably to frustration and bewilderment. With proper background knowledge imparted early there is almost invariably an added interest in the job, and, stemming from that, a wider appreciation of problems and difficulties confronting the undertaking.

Information about such matters as conditions of service, leave, rates of pay, etc., will have been sought, and given beforehand if the contacts with schools are on the right lines. It must always be made readily available. Again, there is the question as to whether there should be an induction course at a railway school, or whether the introduction to railway life is better made at the place where the entrant is going to start his career. The answer may well be that a short period on the ground or in the office, followed by a period of training at a special school, will best meet the needs of most entrants.

Training

Here the objectives are:

(1) To fit the candidate for his immediate task;
(2) to open his eyes to prospects of promotion over as wide a field as possible;
(3) to enable him to move round as much as possible within the office, station, yard or depot to which he has been appointed; in other words, to provide an all-round education in basic jobs;
(4) to encourage education in transport subjects. There are many distractions, and encouragement is surely needed. At the present time, all too few young people are taking advantage of the educational opportunities on offer.

It is here—perhaps more than at any other stage in a career—that enthusiasm and good work should both be recognised, and be seen to be recognised; equally, poor work and slackness should be corrected. The success of this early training must depend in considerable measure upon the quality of, and the interest shown by, the immediate chief. This question *must* have his personal attention, and he certainly ought to have an aptitude for, and an interest in, this all-important matter. If these men are chosen wisely they will do what is required, but there is, unfortunately, evidence to show that too little attention has been given in the past to this important qualification when selecting men for such posts.

Talent

If it is accepted that we have failed to recruit lads of the right calibre, there is surely a greater need now to scour the railway highways and byways for every scrap of talent available. It is the positive duty of all those at each of the various levels of authority to ensure that young men of promise are given the opportunity they deserve. They are badly needed, and the need increases with every advance in modernisation: million-pound schemes with hundred-pound brains will prove a poor investment! There must not be too great a rigidity in regard to movement between grades. There are potential leaders everywhere, and the caste system can have unhappy results.

It is important in the general scheme to ensure movement between stations and depots, and from that level into the districts, and beyond that to headquarters. It has often been said, quite truthfully, that the best headquarters men have moved up through these stages. Equally (and this is not so well recognised) a move back from headquarters to district is often successful.

Higher Posts

Beyond this stage there is the all-important problem of selection and initial training for the higher posts in our industry. The system which has been gradually adopted throughout the years is perhaps best known on the traffic side. There we have the traffic apprenticeship scheme, open to both members of the staff and to university graduates. Members of the staff sit a written examination set and marked by the Royal Society of Arts. Candidates obtaining more than a fixed percentage of marks are interviewed in the region, and those considered most suitable are passed forward to a central selection committee for a second interview. University graduates are selected by the central committee without a previous written examination. The aim throughout is to secure the best material from the staff and from the universities.

In the technical fields, training schemes are open both to qualified staff in the engineering departments, and to university men. The schemes are progressive. Trade apprentices with initiative and ability can become engineering apprentices, and what are known as the graduate schemes are open to engineering apprentices of real ability, as well as to graduates. Thus, the way is open for the lad who joins as a young apprentice to take his place alongside the university graduate, and to reach the top level in his profession.

Changes

The schemes of training have altered with the passing of the years. On the traffic side, the schedule has been remodelled in the light of the recent reorganisation and of the changes in traffic problems generally. A sensible change has also been made in shortening the period during which the traffic apprentice is merely absorbing detailed information and in ensuring that a large part of his training calls upon him to act on his own responsibility and to use initiative. For higher management what we need is much more than an encyclopaedic knowledge of facts. We want the man who won't lose sight of what we are really aiming at in a mass of detail, but who has a broad knowledge of fundamentals coupled with initiative and driving force. In the technical field, a new look at the training schedules has been required because of the changeover from steam to diesel and electric motive power, and of the rapid and revolutionary changes in other directions, instance, signal engineering. It behoves management at all levels to keep pace with these developments, and to ensure that our young men are given suitable training.

With the idea of training being made as broad as possible, is there not a case for the traffic apprentice spending a little time on the engineering side, not to become an engineer, but at least to obtain a general idea of what engineering is all about, and, what is more important, what the engineer is required to do for the traffic people. Equally, should not the engineering graduate or apprentice get out of the shops occasionally and see what is happening in the sheds, depots and in the traffic field generally. After all, he is being trained (or should be) to produce the machine or the equipment which is to be used by the traffic people. Above all, it should help in that vital aspect—the focusing of attention on the common purpose of the undertaking. On the whole, these training schemes for management work well.

Further Promotion

Many new candidates will go ahead in the normal course of progression; some will succeed, and reach the summit; others will go some way towards it; but a few may fail to find their proper level in a service which provides for every stage of knowledge and ability. It is sometimes claimed that good men are passed over, and others, not so worthy, secure promotion. There is no system of selection that will guarantee perfection, but, by and large, the good men come to the top. There are, from time to time, accusations that this or that man is receiving favoured treatment, and that a better system of selection could be devised. But there are two points that could be made here; first, that the great majority of our officers and local officials are fair-minded, and secondly, they will be the first to suffer if they fail to secure and advance the best men.

But has there been too much rigidity in the attitude toward movement between departments? Must we assume, for example, that the young engineer is barred from appointment in the operating field? Are there no potential commercial officers in, say, the estate, or public relations and publicity, or technical departments? Do we cast our net widely enough, and are there people who are looking at this overall problem with a readiness, and indeed an eagerness, to make these changes? It can hardly be imagined that many of the young men with these potentialities would resist such changes, and the responsibility must therefore fall upon those in authority. The amalgamation of the old departments into the traffic organisation points the way.

Role of the Specialist

There must be a good deal of specialisation in a large organisation. The specialist has his place in the scheme of things, and it is an important one. He must receive due reward for his specialised knowledge. On the other hand, there must be constant guard against over-specialisation, and an equally constant effort to move people round as much as possible. And this brings me almost to my final point and, in my view, a very important one. I have referred to the shortage of outstanding men between the ages of 35 and 50. This shortage makes it absolutely essential that we plan now for five, ten, or even fifteen years ahead, that we assess now where the promising younger men that we have can be expected to finish with proper experience, and that we ensure that they receive this experience. Training does not cease when a man secures his first job. Initial training must be followed by the development of background and capabilities. In selected cases, a spell abroad, possibly on an interchange basis, would be well worth while and not merely on railway account alone; a freshening of the mind is all part of education.

In brief, this means that we must plan the careers of selected men. They must be directed into posts which will help to fit them for ultimate high responsibilities. They must be held back from posts—perhaps offering immediate lucrative promotion—if the experience they would gain is not that which they require.

Need to Breed Men

Such planning of careers of selected men requires that the men themselves should have confidence in those who are shaping their destinies, and it requires concerted action between all those responsible for making senior appointments. But it is only by such planning that in the years ahead we are going to have sufficient men capable of administering railways. It is no use spending millions on modernisation, nor improving the calibre and morale of our staff as a whole, if we fail to breed men to shape the policies of the future.

Some of my audience may by now be having certain doubts about the ideas on training and advancement advocated in this paper. It may even be thought that the system of advertising posts, so long established, is under fire and that favouritism in one form or another will weigh against the deserving candidate. Nothing of the sort. The whole intention is that men of ability shall be sought out and given the opportunity they deserve, the opportunity being open to all in the service.

Today there are more jobs at the top; in a modern industry that should be so. We have suffered in the past for having too few in the top ranks with time to think and plan. Those there now need reinforcement. "The biggest item in a transport service is the men who work it"; let us be as sure as we can that we get them.

* Abstract of presidential address to Railway Students' Association of the London School of Economics.

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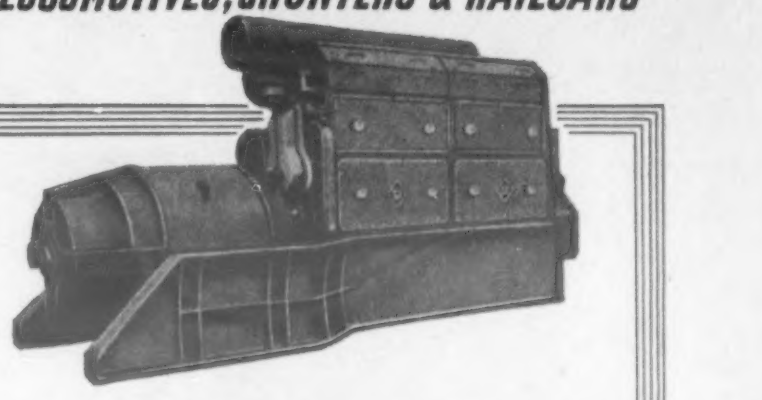

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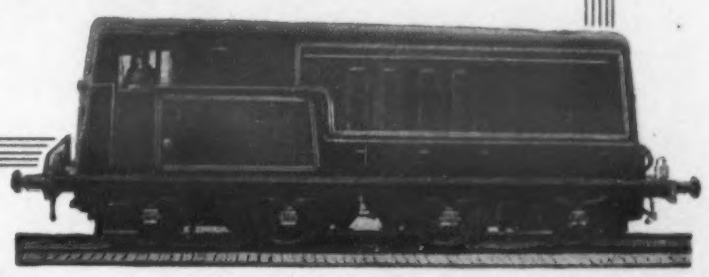

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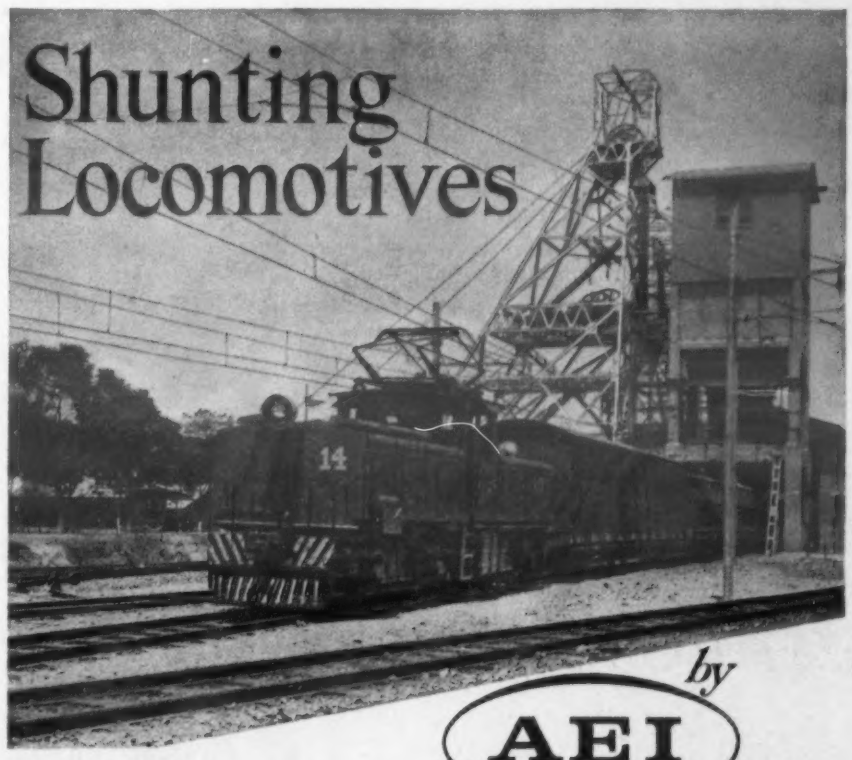

by AEI

One of the 2—800 H.P. 53¼ ton Bo+Bo type Shunting Locomotives for 1500 volt operation on a 3'-6" gauge in service with Roan Antelope Copper Mines Limited on ore transportation.

Associated Electrical Industries Limited
Traction Division · Trafford Park, Manchester 17
Manchester · Rugby · Sheffield · London

LORRY—BUS—COACH

User Appeals Go Against R.H.A.

TWO appeals by the B.T.C. concerning normal user in which the Road Haulage Association had supported the respondents and which it was hoped would establish some definition of what was "normal" have been allowed by the Transport Tribunal. It says that they raise no new question of principle and its views on cases of this kind have been frequently stated. The Tribunal has indicated that it might never define the term "normal user." In each case one vehicle has in effect been put off the road until January 1, 1960, as a penalty for the licence-holders' wrongdoing.

In the appeal concerning T. Roberts (Haulage Contractors), Limited, the respondent did not deny that the user of a vehicle which it acquired from another operator had been inconsistent with the statement of intended user made when it applied to take over the vehicle. The original normal user mentioned a 10-miles radius of Renishaw, Derbys, but it was shown that the vehicle had operated to a very large extent far outside that radius when the B.T.C. objected to the renewal in June, 1958. At the renewal inquiry the operator sought a much wider normal user. The second appeal, H. Pike, is allowed on similar grounds; in both cases the Tribunal accepted that the wrongdoing had not been deliberate.

Illuminated Bus Advertisements

BOTH Tilling and B.E.T. bus companies are offering illuminated side advertising panels on their vehicles. The B.E.T. group has a prototype coloured illuminated side advertisement on the exterior of a double-deck bus of the Trent Motor Traction Co., Limited (see illustration). After a good deal of experimental work, carried out originally by Ribble Motor Services, Limited, and subsequently developed by Trent, from an initial design prepared by Mr. S. C. Vince, chief engineer of the B.E.T. Federation, a satisfactory method has been evolved of solving the difficult problem of providing adequate dispersal of light within the confined space between the interior and exterior panels without imposing an impossible load on the ordinary bus battery. By the use of transistors, 10 2-ft. 20-watt fluorescent tubes effectively illuminate a panel 18 ft. long by 21in. deep, and the additional load on the ordinary bus battery is limited to 10 amp. Orders for 150 of the illuminated sides have already been placed.

Claimed to be the first bus in Britain to carry this new form of outdoor advertising is one of the fleet of the Bristol company in the Tilling group. On this bus the panel is lit from behind by thirty 6-watt lamps which draw their current from the battery of the vehicle. Consideration is being given to modifying buses in other Tilling companies. It will be recalled that Coras Iompair Eireann demonstrated a bus with tungsten lamp illumination in January this year.

Wholesale Grocers Hire Transport

TWELVE wholesale grocers, members of the CENTRA alliance, in the Midlands and South of England, have recently decided to hire part of their transport from N.M.U. (1953), Limited, the transport contractors. Three B.M.C. Austin 4-ton diesel delivery vehicles already operate for two wholesalers—A. H. Goddard and Co., Limited, of Bournemouth, and Baines and Whitmore (Leicester), Limited. As existing vehicles require renewal they are to be replaced by N.M.U. and all vehicles will eventually have the CENTRA sign emblazoned in gold on the cab door. It is also planned to have an illuminated CENTRA sign above the cab of each vehicle. CENTRA has been operating in this country as a wholesaler-retailer alliance for about two years; it was founded in the Netherlands in 1937 and there are 28 members in all in this country. Most are medium-sized wholesalers operating up to perhaps 10 vehicles. The principal object in the change is to avoid locking up capital in transport equipment.

This Trent double-decker has 18-ft. long advertisement panels illuminated by fluorescent tubes on its sides. A description of the equipment appears on this page

Refused Discharge from Bankruptcy

AN application by Eric Earles Bamford, formerly a haulage contractor of Alfreton, Derbyshire, for his discharge from bankruptcy was refused at Derby on October 28. Judge Sir Ernest Braund said: "I consider this application amounts almost to impertinence." Bamford was sentenced in 1956 to seven years' imprisonment for £140,000 frauds on hire purchase companies. He was brought from prison to make the application. The receiving order had been made in December, 1955. The application was opposed by Mr. W. W. Jordan, the Official Receiver, and Mr. Brian Bush, representing a number of hire purchase companies. Mr. Jordan said that when the receiving order was made, Bamford's assets were £300 and Mr. Bush added: "As far as my clients are concerned they are something like £140,000 out of pocket through his transactions. They do not think he should be released on the commercial world." The judge said Bamford would not be released from prison before 1961 even under favourable circumstances.

Pool Meadow Bus Station

IF Coventry Corporation adopts plans prepared by its Redevelopment Committee the present diffused and unsatisfactory arrangements at Pool Meadow bus station will cease. At present a number of country services has to load on a piece of waste land some way away from the main station. It is proposed to erect proper waiting rooms with a cafe and to arrange 29 stands for Corporation services and 16 for Midland "Red" and other longer distance services. In addition there will be a garage for 100 Corporation buses and public parking facilities.

Sheffield Dispute a National Issue

IN an effort to solve the strike over standing passengers in high-capacity buses in Sheffield the meeting of the National Joint Industrial Council, due for November 12, was put forward a week and was due to be held on Thursday this week. Alderman S. Dyson, chairman of Sheffield Transport Committee, and Mr. John Heys, Sheffield Town Clerk, visited London on October 30, to report on the situation to the Federation of Municipal Transport Employers. A mass meeting of Sheffield busmen on Monday turned down a request from union leaders to return to work as they had an earlier suggestion that the number of standing passengers on the A.E.C. Bridgemaster and Leyland Atlantean buses concerned should be only five instead of eight. The strike acquires a new seriousness from the fact that the T. and G.W.U. has given notice to terminate the national agreement relating to standing passengers in the New Year. This provides for eight standing passengers in the provinces.

Diploma for Sheffield Garage

THE Sheffield City Transport bus garage opened in June last year at Greenland Road, Darnall, has been awarded the bronze medal of the Royal Institute of British Architects. The bronze medal for architecture consists of the presentation of a bronze medal to the architect, Mr. J. L. Womersley; a replica of the medal to the proprietors; and a plaque to be fixed on the building.

Good Response to Rover Tickets

SUMMER Sunday Rover tickets on Edinburgh Transport Department buses were a major success this year, the total sales numbering 135,707. Mr. W. M. Little, transport manager, told the Transport Committee that this was about twice as many as the year before. It was agreed to issue similar tickets again next year between the spring and autumn holiday periods, but the cost, at present 2s. 6d., will be determined later.

Closed Shop in Bread Delivery

BREAD van salesmen employed by H. L. Groom and Son, Limited, of Erith, were last weekend concerned with a dispute following the refusal of the company to include in a new agreement with the Union of Shop, Distributive and Allied Workers a clause making union membership compulsory. About 160 delivery men were said to be involved.

A statement by the employers said they had been negotiating a new agreement in place of one which expired on October 1. "The proposed new agreement contains the same terms as the previous agreement except that it provides for a simplified commission scheme to van salesmen and does not repeat the requirement that employees must be members of a trade union. This means that employees are free to be members of a union or not as they wish. The union has not seen its way to accept the proposed agreement unless the company signs a letter which would in effect reinstate compulsory trade unionism," the statement went. The revised commission arrangements would mean a pay increase, it was said.

Bus and Coach Developments

Kenfig Motors, Limited, Kenfig Hill, seeks excursions and tours from Kenfig Hill of E. P. John.

Licences of Musgrave Motor Coaches are sought by A. R. Symonds, South Kirkby, and T. Farmery, Moorthorpe.

Liss and District Omnibus Co., Limited, hopes to cover the Petersfield—Froxfield service formerly worked by Little Wonder Coaches, Limited

A. E. Thomas, Usk, proposes a Tuesday, Friday and Saturday service thence to Abergavenny via Herbert Arms and Bettws Newydd.

A. E. Brown, Caistor, applies for revised services between Caistor and Grimsby and another route between those points. Grant would involve the surrender of his existing licence and surrender of those held by W. H. Martin and Son.

MORRIS WINS ON VALUE

For example, see what the forward control Morris 5-tonner gives you. All-steel cab, sealed against dust and draught. Wrap-round toughened screen for safety vision. Foam rubber seat cushions. Four-way adjustment to driver's seat. Easy-reach switch grouping. Choice of petrol or diesel engine. Rigid chassis structure.

Morris 5-tonner forward control standard platform truck: £956.10
Diesel: £1,200.10, also available with normal control, petrol or diesel engines.

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Every vehicle in the Morris range, from light delivery van to long haul prime mover, incorporates features which set a high standard of efficiency, operating safety, driver comfort.

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commercial vehicles

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Overseas Business: Nuffield Exports Ltd., Oxford and 41-46 Piccadilly W.1

MC 42

HOW THEY DO IT IN ITALY

Ambitious Motorway Scheme

THE VIA DEL SOLE AUTOSTRADE

WHILE we are struggling to complete less than 100 miles of motorway, the impecunious Italians have given a lead on how to build several hundred miles through difficult terrain. For it was on May 19, 1956, that what is probably one of the world's most ambitious motorway schemes was begun in Italy. This motorway was given the rather romantic name of "Via del Sole," or highway of the sun. It is to stretch from Milan in the north via Bologna and Florence to Rome and thence to Capua and Naples, a total of over 461 miles. Unlike the great highway schemes of America and Germany and even our own London—Yorkshire motorway, this road was not to lead over either flat or relatively uninhabited country. The first stretch from Milan to Bologna goes through a densely-populated industrial region while from Bologna onwards it runs either over or along the Appenine mountain range, which in Europe is second only to the Alps in rugged severity.

The Po River viaduct on the Via del Sole

Tunnels and Bridges

For this reason it was not always possible to take a route along the surface. On the Bologna—Florence section tunnels of a total length of more than eight miles had to be blasted through rock in order to traverse a mountainous area without unduly steep grades or excessive curvature. Therefore on this section alone the distance traversed in tunnel is almost exactly the same as the entire Preston by-pass motorway. On the Milan—Florence section the road passes over 433 viaducts of a total length of about 11 miles. The longest of these is the bridge over the River Po. This consists of 16 240-ft. spans carried out in prestressed concrete. The bridge over the River Tara is 1,600 ft. long.

The River Lambro is crossed by an arched reinforced prestressed concrete bridge with a span of 185 ft. The motorway or autostrade, which consists of four lanes plus two extra or emergency lanes, i.e. six lanes in all, also passes over 12 reinforced concrete arch bridges. The most spectacular of these are the bridge over the Aglio, which is more than 240 ft. high and has a central span of 500 ft., and that over the Sambro with a central span of 430 ft. As the road is to have no crossings with existing roads, all these had to be bridged over the motorway or taken underneath. On the Milan—Florence section no fewer than 231 bridges of a total length of 17,000 ft. had to be built for this purpose. It was also necessary to build 1,185 culverts of a total width of 4,000 ft. for streams and irrigation channels.

Gradients and Layout

In spite of the mountainous area traversed, the gradient on the Milan—Bologna section is never more than 1 in 33 and on the Bologna—Naples section it does not exceed 1 in 25. Basically the motorway consists throughout its length of two carriageways, each 24 ft. in width, together with two 9-ft. parking lanes. These parking lanes are made good enough to be driven on and are provided mainly so as to facilitate the conversion of the road to a six-lane one in the near future. The two lanes are separated by a 9-ft. central grass strip on which bushes are planted. These should eventually produce a solid 5-ft. central green wall between the two roadways. This avoids dazzle at night from the headlights of vehicles travelling in the opposite direction. Experience on previous autostrade has shown that bushes less than 5 ft. in height were worse than useless as the light filtering between the leaves often increased the risk of dazzle. Different types of shrubs were used for different sections of the road so as to give the driver some change of view in order to avoid monotony, biggest danger of motorway driving.

Entrances to and exits from the motorway are by means of "trumpet interchanges," which are considered the only really safe layout for entering and leaving. Special service areas are provided every 50 kilometres (31 miles) and the facilities provided there are refuelling and repair stations, restaurant facilities, telephones, as well as extensive parking spaces. The Via del Sole is extensively patrolled by police. There will be one police substation for every 35 kilometres of road (22 miles) and the strength of each of these sections will be between 15 and 20 men. These patrols are to be equipped with powerful Alfa Romeo vehicles with two-way radio equipment, which are to carry extensive stocks of tools, jacks, fire extinguishers and first-aid equipment. Speeds on the road are to be high. An average speed of up to 100 m.p.h. is envisaged over many miles and no vehicle is allowed to be driven at below 25 m.p.h.

Cost

The total cost of the road is estimated at 184,600 million lire, or about £107 million. The direct labour engaged on the road numbers over 8,000 men while a labour force of about 20,000 is engaged upon ancillary tasks such as mixing concrete, blasting and bridge-building. Some 2,000 road-building machines were employed. As soon as the contracts were signed the process of purchasing the land required was begun. Although the corporation was given compulsory purchase powers by the Italian Government, coercion was only used when friendly agreement was impossible. Up to now no less than 4,129 million lire (£2½ million) has been paid to property-owners affected.

The first section from Milan to Bologna, which is 122 miles long, was opened to traffic in July, 1959. The 25-mile Capua—Naples section had already been open to traffic since last February. It is expected that the difficult Bologna—Florence section will be completed by 1960; the rest of the road which leads along the Appenine mountain range is well under way. All the tunnels have been completed or are under construction and the viaducts have been started. It is confidently expected that the whole project will be finished in 1961.

Construction

Over most of the route the subsoil itself is used as foundation. The soil was compacted to achieve 95 per cent Proctor density. Stones for a bed of ballast were mixed according to size and shape in central sizing stations or in situ with special stabilising machines. In this way it was possible to form a stratum of stabilised granular material. Past Italian practice has been to use waterbound macadam below the top surface of bituminous material. In the construction of the Via del Sole the macadam was left out in some sections and instead a bituminous aggregate, mixed in a central plant, was used.

The courses laid upon the compacted foundation terrain were the following:—

(*a*) 8 in. of chippings or 16 in. of mechanically stabilised soil.
(*b*) 4 in. of waterbound macadam followed by 2½ in. of waterbound and semipenetrated macadam;
or
6 in. of asphaltic macadam laid in two courses;
or
8-in. thick slabs of vibrated concrete reinforced with steel mesh at about 11 oz. per sq. ft. The slabs have a longitudinal expansion joint and a series of transverse expansion joints at 19-ft. intervals.
(*c*) A binder 1½ in. in thickness.
(*d*) A surface course 1½ in. in thickness.

The parking lanes were made from 4 in. of waterbound macadam or 8 in. of cement-stabilised soil, together with a wearing course.

Sighting

On the Milan—Bologna section the minimum radius at curves is 750 yd. and the distance of free visibility more than 300 yards. On the more mountainous sections of the remaining road the minimum radius at bends is 250 yd. and minimum visibility 125 yd. These figures apply only exceptionally. In general the road has a high standard of visibility. All exits and entrances, as well as rest stations, are well illuminated and accident-prevention precautions are taken near bridges and tunnels. For example, close wire mesh protects the highway wherever bridges cross the motorway. This is to prevent stones and other dangerous objects from falling on to the autostrade.

On the Milan—Bologna section

The whole project, which is to form the southern section of Europe's Highway No. 1, leading from Uppsala in Sweden to Naples, was designed by Professor Ing. F. Aimone Jelmoni and is being carried through by Soc. Concessioni E. Costruzioni Autostrade under the general direction of the Italian Ministry for Public Works.

★

PUBLICATIONS RECEIVED

DIXYLON PLASTIC TRANSMISSION BELTING. A new catalogue of precision belting for high-speed drives, which is claimed to be stretchless, silent and smooth running. Published by the manufacturer, R. and J. Dick, Limited, Greenhead Works, Glasgow, S.E.

ISOCYNE 4 WAY DECORATIVE PROTECTION OF TIMBER. A new brochure published by the British Domolac Co., Limited, Abbey Wood, London, S.E.2, which describes the company's product Isocyne, a clear lacquer based on poly-urethane that will protect wood from prolonged exposure to light, heat, moisture and chemicals.

THE EPOK STORY. A new illustrated book published by British Resin Products, Limited, Devonshire House, Piccadilly, London, W.1, as a guide to the nature and uses of Epok resins. Epok is the name given to a group of synthetic resins produced by British Resin Products (a member of the Distillers Plastics Group), which are used for the formulation paints, varnishes and allied products.

B.P. AVIATION PRODUCTS. A new handbook issued to its customers by Air B.P., the international aviation service of the British Petroleum Group. It gives a complete guide to the full range of fuels, lubricants and special products marketed by B.P. for aviation, which include aviation fuels, aero engine oil's for piston and turbine-engined aircraft, hydraulic and de-icing fluids, greases, special oils and protective products.

I.C.I. SHEET AND STRIP—COPPER AND COPPER ALLOYS. A recent publication of the metals division of Imperial Chemical Industries, Limited. With headquarters at Kynoch Works, Witton, Birmingham, I.C.I. Metals Division is the largest manufacturer of wrought non-ferrous metals in the Commonwealth, its various constituent firms, with roots planted in the history of the copper and brass industry, manufacturing sheet, strip, wire, certain types of tube and semi-fabricated products in copper, aluminium, titanium, zirconium and their alloys. Fittingly, the new brochure is extremely comprehensive and forms an invaluable source of information for designers and users of these materials.

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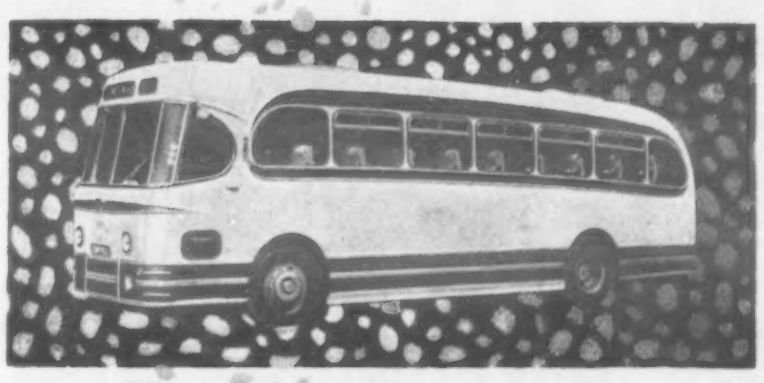

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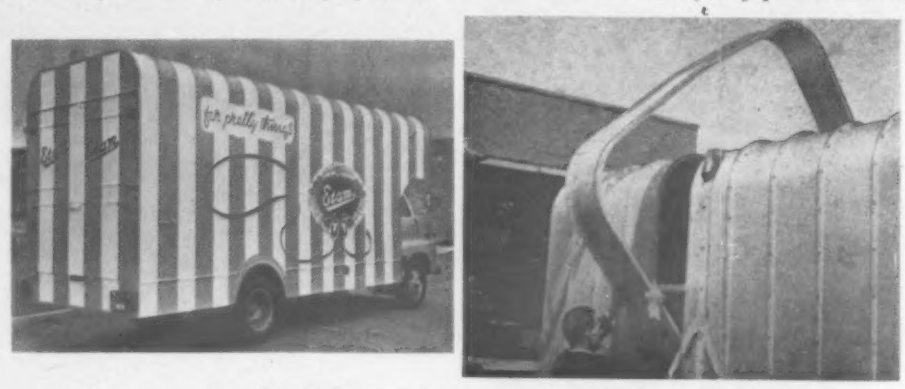
LARGER INTERCHANGEABLE COMPONENT BODIES

Neville Vans and Containers

A FORM of vehicle body construction employing interchangeable rolled light-alloy sections developed by G. E. Neville and Son, Limited, Mansfield, for tipping bodies, which has been in successful production by that company for five years, has now been extended by application to large van and container construction. This new Neville development introduces a lighter-gauge section panelling which incorporates a novel weatherproofing principle and reduces bodybuilding to its most simple form.

The basic unit is an interchangeable rolled and jig-drilled light-alloy extrusion which forms both the panelling and, when bolted together through external flanges, the main body framing. The design achieves a high strength-to-weight ratio and provides for simple assembly by semi-skilled labour, while any damaged panel can quickly and cheaply be replaced by a stock component. Individual components and complete kits are available for assembly by customers. The body kits, which are available to suit a variety of popular commercial vehicle chassis, condense into an economical pack for carriage or shipment.

In order to achieve waterproof joints between panels, outer edges of panel flanges incorporate a V-shaped register which, when bolted to the adjoining panel, forms a dove-tail joint. A circular-section weatherproof cord is inserted into the mouth of the flange prior to final bolting up to effect a seal. The company claims tests have shown that this type of joint retains its waterproof properties regardless of any distortion to which the structure is subjected.



A 1,350 cu. ft. van body built by Neville using the new sections on a Bedford passenger chassis; right, one of the rolled sections being inserted in a container body

A London Midland Region diesel railcar set running into Welford and Kilworth Station en route from Peterborough to Birmingham

WHY WATER COSTS MORE
THAN NEW SHELL ANTI-FREEZE

If your drivers drain their radiators every winter night, all you save is the few shillings that Shell Anti-Freeze costs. And a very false economy that is. For draining and refilling one vehicle takes a good ten minutes a day, or an hour a week, or some 22 hours a winter. *And you're paying for that time.*
Further, by letting air into radiators, you're simply encouraging rust. And water alone is never immune from the dangers of a freeze-up. On very cold days a truck can actually freeze on the move, let alone during a short halt.
But new Shell Anti-Freeze is absolutely safe in any British winter. What's more, Shell Anti-Freeze is also anti-corrosive. Above all, it saves you wasting the expensive time of your drivers on a cold and disagreeable job. *THINK OF THE WEATHER*
THINK OF YOUR FLEET THINK OF NEW SHELL ANTI-FREEZE
YOU CAN BE SURE OF SHELL

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Bedford Light Van
has clutch reliability
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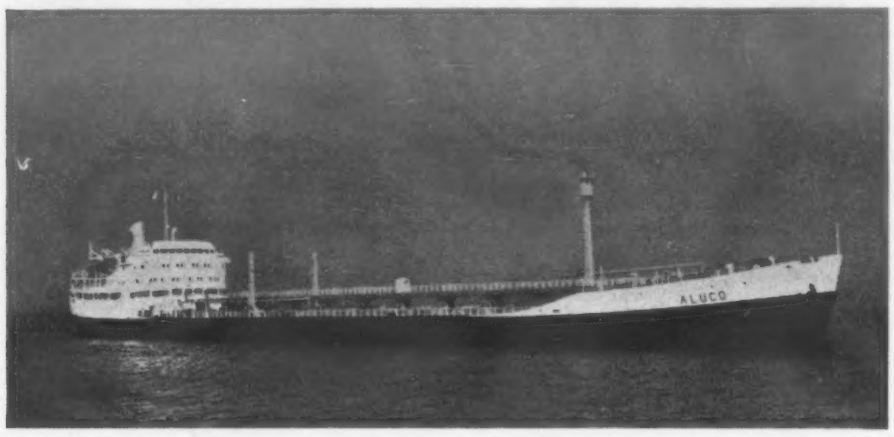
DEVELOPMENT IN TANKER DESIGN

British Ship with Accommodation Aft

THE first British-built oceangoing oil tanker to have her entire accommodation, navigating space and services at her after end has successfully completed trials and is now in service. She is the turbine tanker *Aluco* of 19,000 tons deadweight, and 560 ft. long overall, built for Shell Tankers, Limited, by J. L. Thompson and Sons, Limited, Sunderland. A sister vessel is being built at the same yard. The problems associated with housing all personnel in the one block of air-conditioned accommodation have been successfully overcome and the general layout and spaciousness of the various rooms compares favourably with what would be found on a ship of conventional design. The new design, giving the officer in charge a clear view of the deck, makes for greater ease of control in handling cargo.

The tanker has been designed as a permanent tends from the fore end of the house to abaft the funnel and provides an excellent recreational space. Clear deck space on the boat deck is achieved by the fitting of a special design of Schat single pivot gravity davits. The master and chief engineer are accommodated at the fore end of this deck and each is provided with a suite of rooms consisting of office, lounge, bedroom and bathroom. Both machinery space and accommodation fans are located inside the line of casing on this deck and at the after end a large tiled swimming pool is fitted. All officers are berthed on the accommodation deck and the officers' smokeroom, hospital and laundry are also located on this deck. Deck and engineer apprentices, ship's office, dining saloon, galley, crew cafeteria, petty officers' mess and smokeroom are located on the poop deck and all P.O.s and crew are berthed on the upperdeck.



The new British-built tanker "Aluco," which completed her trials last month

white oil carrier and extensive use has been made of epoxy resin paints in cargo tanks to prevent the serious corrosion which would normally be experienced in a vessel carrying such cargoes. All steel used in the construction of this vessel was shot-blasted before erection and wire brushed as necessary before the application of paints. The longitudinal system of framing, with corrugated longitudinal and transverse bulkheads, is employed.

Twenty-eight of the 33 cargo compartments are entirely coated with epoxy resin-based paints. The remaining five tanks, in which ballast will be carried, are fitted with cathodic protection, but also have the underdeck and upper parts coated with epoxy resin-based paints. The main supplier of the paint for the cargo tanks is The Red Hand Composition Co., Limited; other suppliers were British Paints, Limited, International Paints, Limited, Arthur Holden and Sons and Robert Bowran and Co., Limited. The fore and aft gangway extending the full length of the main deck between the aft superstructure and the focsle front is of entirely new design and novel appearance enhancing the profile of the ship.

Officers' Accommodation

The wheelhouse, chartroom and radio room are located on the navigating bridge. This deck ex-

Extensive use is made of Formica-faced Marinite throughout officers' and crew accommodation and alleyways. This material both retards spread of fire and minimises maintenance.

Main and Auxiliary Machinery

The main machinery, built by Parsons Marine Turbine Co., Limited, comprises a two-cylinder turbine of 7,500 s.h.p. ahead and 4,000 s.h.p. astern designed by Pametrada and driving a four-bladed propeller. Service speed is 14½ knots. All electricity is supplied by three B.T.H. alternators, two of which are driven by back pressure steam turbines of B.T.H. manufacture through single reduction gearing, the third being driven by a V-6 Ruston Paxman type 6 RPHZ diesel.

Illumination throughout the accommodation with the exception of alleyways, is by tungsten filament lamps. The engineroom and alleyway lighting is fluorescent, the alleyways being fitted with 115-volt 2-ft. 20-watt cornice fittings and the engineroom by 2-ft. 20-watt and single and twin 5 ft. 80-watt fittings. Each of the engineroom 80-watt fittings has incorporated in its housing a small 115-240 volt step-up transformer, the use of which allowed the deletion of 2-20 kVA three-phase delta star transformers and a 240-volt sub switchboard used on earlier ships.

R.H.A. Conference Speeches

NEED FOR NEW INVESTMENT

LEADERS in the road-haulage industry have begun to dream of a modernisation programme all of their own, it emerged from remarks made by the chairman of the Road Haulage Association, Mr. R. N. Ingram, at the annual banquet winding up the Bournemouth conference last week. Mr. Ingram spoke of what he called "a complete plan for road haulage. I almost described it as a modernisation plan on the analogy of what is being done for another section of the transport industry." There would be certain differences, however, the most important being that they would pay for their own plan themselves; in fact, they were already paying for it many times over. "For some parts of our plan we shall need the co-operation of the Government, particularly when it comes to the carrying out of further stages of the roads programme," he added.

But up-to-date equipment giving an efficient service was worth paying for at reasonable rates. Hauliers had no intention of inflicting a rigid system of charges on trade and industry, but it was not unreasonable for them to say that there were minimum rates below which it was impossible for a haulage business to remain healthy.

Getting the Facts

The need to put their case to the public had led them to tackle a task that has been desirable, but neglected, for the past twenty years. The R.H.A. has begun to collect systematically facts and statistics about the work that its members do. A good deal more work had to be done, said Mr. Ingram, but even the provisional early results gave an impressive picture of the astonishing volume of work done by members with a comparatively small fleet of vehicles. [The association claims to have had a substantial response to its new questionnaire on this subject but is coy about possible date of publication of any findings.—EDITOR.]

The new Minister of Transport, Mr. Ernest Marples, was the principal guest; he was honouring his acceptance of the invitation only at some personal inconvenience, news which those present warmly acknowledged. Mr. Marples, still in his "new boy on first day of term" role, promised an energetic approach to his new responsibilities. He was going to have regular meetings which would be conducted like board meetings. When he decided to act he would act quickly. He was in favour of experiments—there was apparently a good deal of argument, for example, about the respective merits of parking meters and discs. Well, why not try both and settle the matter? Mr. Marples let it be known that he was, in fact, something of a believer in the psychology of change. He concluded by divulging his motto in office, two lines from Kipling:

"No easy hopes and lies shall lead us to our goal,
But iron sacrifice of body, mind and soul."

Mr. Marples looks a pretty fit man; the second line of his credo implies that the going is likely to be tougher in Berkeley Square for all concerned.

★

POWER TOOL ATTACHMENT

Surform Drum-Type Cutter

FASHIONED in the shape of a 2-in. diameter drum and provided with a universal adapter, a new Surform drum attachment for power tools has been introduced by Simmonds Aerocessories, Limited, a member of the Firth Cleveland Group. The Surform 2-in. drum is designed for planing, shaping, bevelling or rebating wood of all kinds. It can be used free-hand, with a drill or bench clamp or in conjunction with the Surform planing and rebating attachment. Cuttings pass through holes in the Surform blade and are automatically cleared from the centre of the drum. Only very light pressure is required and, with a little practice, a clean, smooth surface is obtained.

The Surform planing and rebating attachment is sold separately; rebates up to ⅝ in. by ½ in. can be accurately cut. The attachment is an assembly of two adjustable plates which control the width and depth of the rebate. Each adjustable plate is marked off in ⅛-in. divisions. When the drum is required for planing, the width control plate is removed and the depth control plate set at its shallowest level. It then acts as a guide to ensure that the drum is operated smoothly and evenly.

The price of the Surform 2-in. drum is 15s. 6d. complete with adaptor assembly. Replacement cutters cost 11s. 6d. each and the planing and rebating attachment costs £1 15s.

A certain amount of confusion has been caused by a recent announcement of the appointment of Mr. Alec Mosley as press officer for the Mobil Oil Co., Limited. Since Mr. Mosley's name is similar to that of Mr. Alex Moseley, sales manager, South Western region of A.E.C. (Sales), Limited, we are asked to confirm that Mr. Moseley remains with A.E.C. Sales in the above capacity.

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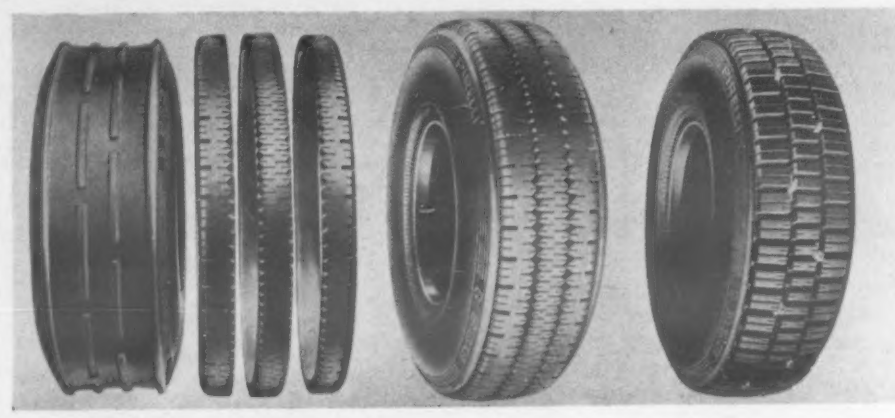
REPLACEABLE-TREAD TYRE

Pirelli Development

FIRST production examples of a new type of tyre in which the tread is a separate replaceable element were presented to the public on the Pirelli stand at the Turin Motor Show, which opened on October 31. Companies in the Pirelli group all over the world are now planning the production of tyres of this type under the designation BS3. Production at the Burton-on-Trent factory of Pirelli, Limited, is to begin shortly, initially of car sizes and later for commercial vehicles.

New methods of construction developed for the BS3 tyre, which has been patented by Pirelli S.p.A., of Italy, mark a significant step forward in tyre development, resulting in a tyre in which only the part most subject to wear, the tread, need be replaced and in which the tread pattern can be carried to suit prevailing weather conditions without special tools or equipment. Another patented development makes it possible to insert as required a series of tungsten carbide-tipped spikes or studs, which, it is claimed, enable a vehicle to be driven on ice with the same degree of control as on dry asphalt.



The casing and the three standard-tread bands that make up the Pirelli BS3 tyre; an assembled standard-tread tyre and, extreme right, an assembled winter-tread tyre with additional steel ice spikes fitted

Claims for subsidiary advantages are no less striking; they include exceptional adhesion at all times, a smoother ride, exceptional silence, improved steering response and extended casing life.

Construction

The Pirelli BS3 tyre consists of a casing or carcase on which are mounted three peripheral steel-reinforced tread bands. Ridges round the crown of the BS3 casing locate the bands parallel with each other across the crown of the casing. The bands are slightly smaller in diameter than the casing itself; thus when the casing is inflated, pressure is exerted all round the casing so that the bands cannot be displaced involuntarily. Detail design of the casing and the inextensible nature of the metallic reinforcement in the tread bands ensure complete adhesion between casing and bands.

The bands can be removed without special tools or equipment when the casing is deflated. The special BS3 casing is said to remain in perfect condition even after the tread bands are worn smooth. In normal good quality tyres the casing will outlast two treads and this is true of the BS3 casing, so that after the first set of tread bands has been discarded, a new set can be fitted without removing the casing from the wheel and in some cases without removing the wheel from the hub. Further, in the event of accidental damage, the casing alone can be replaced while the original tread bands are retained for further use.

A film showing development and testing of the BS3 tyre and assembly and dismantlement demonstrations staged by Pirelli, Limited, in London last week were particularly effective.

OFFICIAL NOTICES

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Write to Director of Recruitment, Colonial Office, London, S.W.1, giving full names, age, qualifications and experience, quoting BCD 173/06/D16.

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MANCHESTER CORPORATION Transport Department require fully qualified Assistant Engineer. Applicants must have passed the final examination of the Institute of Mechanical Engineers or its equivalent.

Salary in accordance with the special basic grade of the national scales, i.e. £785—£1,070 per annum. Point of entry according to experience.

Forms of application may be obtained from the General Manager, 55 Piccadilly, Manchester 1, and should be returned not later than Friday, November 20, 1959.

EAST KENT ROAD CAR CO., LIMITED

ASSISTANT ENGINEER

THE East Kent Road Car Co., Limited, invites applications for the position of Assistant Engineer in the Chief Engineer's Department at Canterbury.

The Company, which has its headquarters at Canterbury, operates some 600 buses and coaches on stage and express services in East Kent and East Sussex.

Applications, which will be treated in strict confidence, should give:—

(*a*) particulars of age, education, technical and other qualifications;
(*b*) a summary of the applicant's experience, including details of past and present appointments; and
(*c*) present salary.

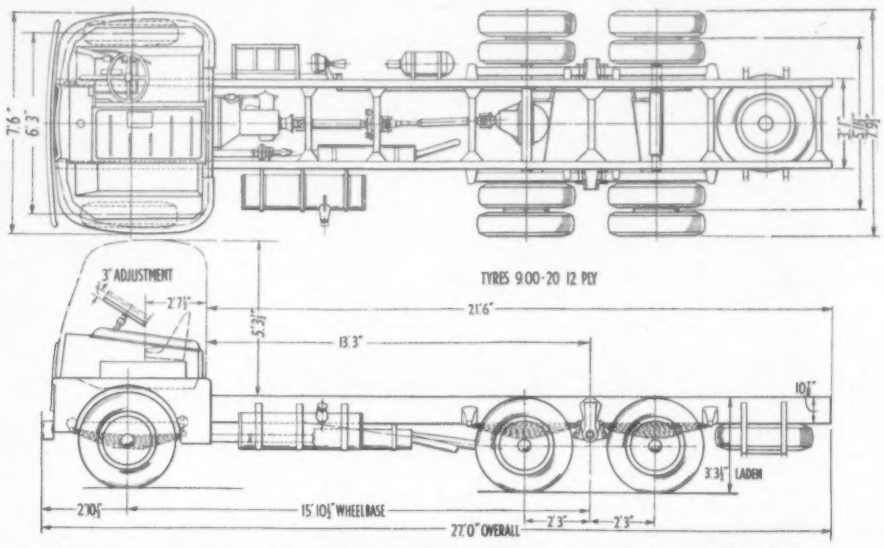
Applications should be addressed to the General Manager of the Company at Harbledown, Canterbury, to be received not later than Monday, November 30, 1959.

COMMERCIAL VEHICLE TEST

*Thornycroft Six-by-Two Mastiff Super Freighter**

ANOTHER WINNER FROM BASINGSTOKE FOR 14-TON LOADS

STUDY of current and likely future trends in trunk haulage, which tend towards bigger unit loads and will inevitably be operated at higher speeds as motorways come into use, has led Transport Equipment (Thornycroft), Limited, to develop a new rigid three-axle goods vehicle for operation at the maximum gross weight of 20 tons. Its introduction coincides with that of a new structural-plastics cab of very pleasing appearance, with wrap-round windscreens and all the thought for crew comfort and convenience that has characterised recent Thornycroft cabs. The new vehicle, Type MH.QR6, will be on public view in the demonstration park at the Scottish Motor Show,



Coachbuilder's drawing giving principal dimensions of the Thornycroft MH.QR6 six-by-two trunk-haulage chassis

which opens at Kelvin Hall, Glasgow, next Friday.

Unlike a number of three-axle vehicles in current use, which are merely adaptations of existing two-axle chassis, the new Thornycroft has been designed as a maximum-weight six-wheeler, with a chassis frame developed for the purpose and correct weight distribution between the three axles, and is provided with ample reserves of power for good performance and economy at this weight on motorways. On the other hand, to keep cost down, use has been made where possible of units already well proved in other vehicles in the company's range. The result, as was roundly demonstrated to us in a recent road test, is another exceedingly fine Thornycroft vehicle, fit to take its place beside the outstanding Trusty four-axle and Mastiff two-axle maximum-weight chassis and fully justifying the company's appellation, Mastiff Super Freighter.

Chassis Details

The new vehicle has the four-by-two Mastiff as a basis, but has been given a larger engine and a longer and stronger chassis frame. This is of thicker section than on the four-by-two ($\frac{7}{16}$ in. instead of $\frac{1}{4}$ in.) with $10\frac{7}{8}$ in. by 3 in. sidemembers parallel throughout their length. The Mastiff front axle is supported on semi-elliptic springs $3\frac{1}{2}$ in. wide by 46-in. centres. The bogie comprises a fully floating spiral bevel leading axle and an undriven trailing axle formed of established Trident units mounted on a dead tube. Rear suspension is by two $3\frac{1}{2}$-in. by 45-in. laminated springs each side with a balance beam between—an arrangement that is already well proved on the Trusty eight-wheeler, on which it is an alternative to a fully articulating bogie.

Steering employs cam-and-double-roller gear handbrake commands the 788 sq. in. of lining area of the four rear brakes.

Power and Transmission

To provide ample reserves of power for sustained high performance on motorways, the vehicle is powered by the Thornycroft QR6 9.83-litre diesel engine, which is a direct-injection six-cylinder unit with a net output of 130 b.h.p. at 2,000 r.p.m. and torque of 430 lb./ft. at 1,200 r.p.m., and is in fact the standard unit fitted to the Trusty eight-wheeler. For less arduous duties, the chassis is available with the Thornycroft NS6 7.88-litre 109-b.h.p. (net) engine, which is standard equipment in the four-by-two Mastiff and would result in a saving on initial cost. Transmission is through a Borg and Beck 16-in. dryplate clutch and Thornycroft five-speed constant-mesh gearbox, with an overdrive sixth speed as an optional extra. A flexibly supported two-piece shaft with Hardy Spicer couplings carries the drive to the intermediate axle, which can be provided with ratios of 5.373, 6.14 or 6.83 to 1.

The chassis is fitted with standard steel cab floorplates and reinforced resin front wings and valence designed as a base for the Thornycroft reinforced resin cab or for integration with individual cab or van bodywork. The new cab is of pleasing modern styling, with two-piece wrap-round screen, full-drop sliding windows and a good area of glass in the back, including wraparound corner pieces.

The cab is formed of large glass fibre-reinforced resin mouldings with additional timber and steel reinforcement where necessary, principally in the back and the area of the door frames. Standard equipment includes flashing indicators and the new C.A.V. four-headlamp set, though

(*Continued on page* 12)

TEST RESULTS AT A GLANCE

Vehicle Details

MAKER: Transport Equipment (Thornycroft), Limited, Basingstoke, Hants.

TYPE: MH.QR6 six-by-two Super Freighter.

ENGINE: Thornycroft QR6 six-cylinder direct-injection diesel; bore 4·75 in. (120·6 mm.), stroke 5·65 in. (143·5 mm.), capacity 600 cu. in. (9·83 litres); 130 net max. b.h.p. at 2,000 r.p.m., 435 net max. torque at 1,200 r.p.m.

TRANSMISSION: **Clutch,** Borg and Beck 16-in. (406·4 mm.) dia. single dryplate, total lining area 268 sq. in. (1,729 sq. cm.); **gearbox,** Thornycroft five-speed constant-mesh with optional overdrive sixth, ratios 7·05, 3·9, 2·38, 1·49, 1 and 0·81 to 1 forward, 6·3 to 1 reverse; **driveshaft,** two-piece open tubular with flexibly supported centre bearing and needle roller universals; **rear axle,** spiral-bevel leading axle, standard ratio 6·14 to 1, options 5·373 or 6·83 to 1.

BRAKES: Compressed-air servo hydraulic all wheels, total lining area 1,045 sq. in. (6,742 sq. cm.). Multi-pull handbrake mechanically connected to four rear wheels.

TYRES: 9·00-20 12-ply, twin rears, standard, 10·00-20 optional.

WHEELBASE: 15 ft. $10\frac{1}{2}$ in. (4·838 m.).

WEIGHT: Chassis and cab in licensing order 5 tons 6 cwt. (5,385 kg.). Works-built 21 ft. 4 in. light-alloy platform 8 cwt. (406·4 kg.).

Test Results

ROUTE: Main and country roads centred on Basingstoke, Hants.
CONDITIONS: Cool and showery.
RUNNING WEIGHT: 20 tons (20,321 kg.) plus crew of two.
PAYLOAD: 14 tons (14,224 kg.).
FUEL CONSUMPTION: (*a*) Continuous running over 24 miles out-and-back 11·5 m.p.g. (4 km./litre) at 30 m.p.h. (48 k.p.h.) average speed; (*b*) continuous "motorway" running over 10 miles out-and-back 9·26 m.p.g. (3·3 km./litre at 39 m.p.h. (62·4 k.p.h.) average speed.
GROSS TON/M.P.G.: (*a*) 230 (82·7 tonnes/km./litre); (*b*) 185·2 (66·6 tonnes/km./litre).
PAYLOAD TON/M.P.G.: (*a*) 161 (57·9 tonnes/km./litre); (*b*) 129·6 (46·6 tonnes/km./litre).
TURNING CIRCLE: 68 ft. (20·7 m.) wheeltrack.
ACCELERATION:
Average times for four runs, two in each direction, through gears:
0-20 m.p.h. 15·5 sec.
0-30 m.p.h. 32·5 sec.;
in direct drive:
10-20 m.p.h. 18·8 sec.
10-30 m.p.h. 39·5 sec.
BRAKING: Best distance in simulated emergency stops from 30 m.p.h. on dry tarmac 53 ft. (16·1 m.); equivalent to 18·2 ft. per sec. per sec. or 0·57 g. overall retardation. Don meter 66 per cent. Tapley meter 73 per cent. Handbrake only from about 20 m.p.h. 38 per cent Don meter.
ESTIMATED TOP SPEED: 52 m.p.h. (83 k.p.h.).
OVERALL FUEL CONSUMPTION: For 65 miles hard driving, including many stops and low-gear work in various tests, 8·7 m.p.g. (310 km. per 100 litres).

Viewed from above or below, the new Thornycroft looks equal to its intended role of Super Freighter. Designed to operate at 20 tons gross, the complete vehicle in road trim, with works-built light-alloy platform, has a tare of 6 tons

* No. 463 in the MODERN TRANSPORT series of road tests.

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NEWS FROM ALL QUARTERS

Rail Branch Line Closes

Withdrawal of the passenger train service between Bristol Temple Meads and Frome, via Radstock West, on and from November 2, has been announced by the Western Region.

First Class Rail Fares Cut on Saturdays

Substantial cuts in first-class fares to and from Euston and St. Pancras and Manchester, Liverpool and Glasgow on Saturdays are announced by the London Midland Region. They took effect on October 31. Tickets will be available for return on day of issue or one week later. Return fares will be 78s. to Manchester, 82s. to Liverpool and 150s. to Glasgow, representing savings of 26s., 28s. and 66s. respectively.

London Underground Bullseye Sign

London Transport has recently removed, for preservation, one of the original "solid" bullseye signs in use on the District Railway, which was at the eastern end of the eastbound platform at Westminster station. Signs of this type, which were introduced on the District and London Electric railways over fifty years ago, are rapidly disappearing. This type of sign bears the station name in white on a blue horizontal panel superimposed on a solid red circle.

Tyne Swing Bridge Hindrance

Consideration of a plan to close the Tyne swing bridge to river traffic for a longer period in the morning and for an hour each evening to ease the road traffic congestion is the subject of a request to the Tyne Improvement Commissioners and the Corporations of Newcastle and Gateshead by the Northern branch of the National Union of Manufacturers. The regulations on the opening and closing of the bridge were made 38 years ago and there has been a great increase in road traffic since.

Metropolitan Line Branch Resignalled

In preparation for the projection of London Transport Metropolitan Line electric trains to Amersham and Chesham in 1960, the signalling at Chalfont and Latimer Station, the junction between the main line and the single-line Chesham branch, has been completely modernised. The changeover took place on the night of October 24-25. For the present, the new signalling will be operated from the existing signal box at Chalfont and Latimer, but eventually it will be remotely controlled from the new cabin now being equipped at Amersham.

Expansion of Railways in India

The development programme of the Indian Railways under the third five-year plan will be based on the assumption that an additional traffic of 90 million tons will be generated during that period, it is stated in New Delhi. This will mean that the traffic carrying capacity of the railways will have to be increased by about 55 per cent during the third plan period, as against an anticipated increase of 37 per cent during the second plan period. The railway programme under the second plan provided for a total traffic of 168 million tons by 1961.

State Holding in Volkswagen Company

It is proposed to turn the Volkswagen works into a private company with the West German Federal and Lower Saxony Governments holding minority shares. The works are at present under the trusteeship of Lower Saxony, whose government has been disputing ownership with the Federal Government.

Underground Lift Modernisation

Ten more station lifts on the London Underground are to be modernised or reconditioned. They are at Essex Road (Northern City Line), Lancaster Gate (Central Line), London Bridge (Northern Line) and South Kensington (Piccadilly Line). This will give them at least a further 25-30 years of life and will save heavy replacement costs. They will all be fitted out with new motors and other equipment, and better lighting. The oldest, at Lancaster Gate, have been in constant use since 1900.

Southsea Overhead Railway Notion

Seafront buses will suffer if a project for an overhead railway service along the front is implemented, it is claimed by some of the Portsmouth passenger transport committee. The piers, beach and publicity committee is responsible for the overhead railcar project, which is to spend £50,000 on pylons and a ropeway system. "Somebody ought to tell the piers and beach committee that it is the prerogative of this committee to carry passengers, and not theirs," says one disgruntled transport committee man.

Air Pollution by Diesels

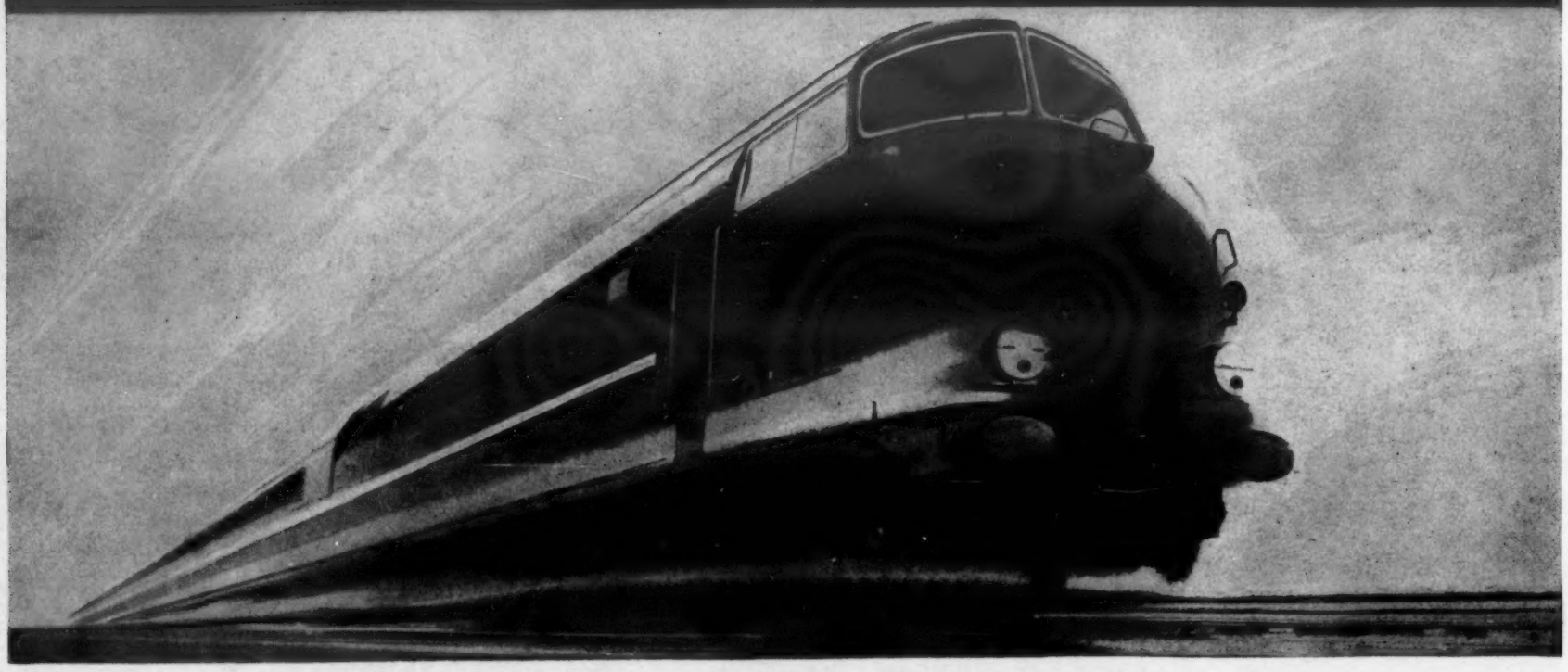
An International Clean Air Conference was held in London recently. During its course, Mr. D. W. Jacquest, diesel development officer of Armstrong Siddeley Motors, Limited, suggested that existing pollution of the air by diesel engine exhausts could not be allowed to continue. It was a prime target of public resentment. More frequent and better maintenance, with trained staff, must be introduced if a serious effort was to be made to reduce diesel smoke. A Shell-Mex and B.P. representative said it should be made an offence to tamper with the fuel setting on engines to try to gain extra power.

New Rail Petrol Tank Wagons

The Mobil Oil Co., Limited, is to introduce a new railway bridging service to Coventry from its Coryton terminal on Thameside. Block trains of 20 petroleum tank cars, running on a timetable schedule, will each transport nearly 12,000 gal. of petroleum products. The rail tank cars, built by the Powell Duffryn Engineering Co., Limited, will be the first of their kind to be used for motor spirit operations in the United Kingdom. Special Emco valves have been fitted to the bottom of each vehicle to replace the customary filling points on top of the cars. These valves, which have had to meet strict safety regulations imposed by British Railways for the handling of motor spirit, will simplify operations by permitting loading and unloading to be controlled at ground level from either side of the vehicle. They will also reduce capital expenditure by cutting out the need for overhead loading equipment.

MAYBACH POWER

COMES TO BRITAIN



Bristol Siddeley are now manufacturing under licence a range of diesel engines from 220 to 2,000 bhp rail traction rating developed by the world-famous German firm of Maybach, who have had 35 years' experience in the manufacture of diesel traction units. Bristol Siddeley Maybach diesel engines are currently being introduced into British Railways Western Region as part of their modernisation programme.

BRISTOL SIDDELEY Maybach DIESEL ENGINES

BRISTOL SIDDELEY ENGINES LIMITED · COVENTRY · ENGLAND

COMMERCIAL AVIATION

New B.O.A.C. Facilities

MORE JET ORDERS

ON November 1, the British Overseas Airways Corporation introduced the de Havilland Comet 4 on the route between Britain and Australia—and also resumed services between the United Kingdom and Israel, using a British Britannia turboprop air liner. The Comet 4 brought an improvement of nearly 14 hr. over the previous fastest Britannia service on the 12,000-miles Australian route. There are five B.O.A.C. services a week between London and Sydney (one more than before), covering between them Zurich, Frankfurt, Rome, Istanbul, Tehran, Beirut, Bahrain, Karachi, Bombay, Colombo, Delhi, Calcutta, Bangkok, Singapore, Jakarta, Darwin and Melbourne. The fastest London—Sydney service takes 33 hr. 15 min. and the fastest Sydnel—London service takes 36 hr. 50 min. Britannia services operate twice weekly between London and Tehran via Tel Aviv. The aircraft, which accommodates 20 first-class and 54 tourist passengers, flies from London to Tel Aviv in 8½ hr., including a stop at Geneva, and in the reverse direction in 9 hr. 10 min. B.O.A.C. services to Israel were suspended in April, 1955, because of a shortage of aircraft at that time.

Silver City Leaving Eastleigh

Silver City Airways is to leave Southampton on November 18, from which date its car-ferry service to Cherbourg and thence to Jersey will be based on Hurn Airport, near Bournemouth. This airport is far better fitted for winter operation, but it will also remain the base all the year round so that the summer Deauville service will resume from there.

New Air Guide for Europe

The European quick-reference section which has recently been a feature of the *A.B.C. World Air-Ways Guide* has now blossomed forth in a slightly enlarged version as a separate publication. Entitled *Airtime*, it costs 4s. monthly and is prepared in close collaboration with the Air Research Bureau. Its uses must be considerable and the booking agent in particular should find it most helpful.

Music on Board K.L.M. Aircraft

K.L.M. (Royal Dutch Airlines) is to experiment with music on board its 15 DC7C aircraft. The main object of this experiment is to find out the reaction of the passengers to this form of entertainment. It will be broadcast via the normal public address system from gramophone records. These records will be played during embarkation and disembarkation and it is also intended to provide music at cocktail time and, if desired by the passengers, during dinner as well.

Scheme for Woolsington

A £700,000 scheme for extending the Newcastle upon Tyne Corporation airport at Woolsington has been forwarded to the Minister of Aviation for approval. Half the total cost will be for engineering services. At the outset the airport will be extended to cope with between 80,000 and 100,000 passengers annually, with provision for further extensions to handle 200,000 passengers if necessary. The terminal block will be resited, and accommodation will be provided for eight aircraft to stand at one time with provision for 12 aircraft later.

Flying Tiger Continues its Progress

Another month of record air freight revenues was reported today by the Flying Tiger Line for September, when traffic volume reached $1,454,203, the largest in the company history. Mr. John L. Higgins, vice president, said the September figure surpassed the previous mark of $1,376,972, established in July. September revenue rose 29.1 per cent over the same month last year, when air freight traffic totalled $1,126,390. For the first nine months of the current year, air freight revenues increased 33.9 per cent to $11,278,328 over the $8,421,890 reported last year.

Heliport for Glasgow?

Glasgow is considering the creation of a municipal heliport. Meetings are planned with the Ministry of Aviation and British European Airways to discuss landing facilities in the city and Fairey Aviation, Limited, recently sent Dr. G. S. Hislop to discuss the proposed sites. Airline companies are to be asked whether they are interested in helicopter links between Glasgow and their airports and, if they are, Glasgow would consider establishing a heliport. Two sites were inspected. One could be used at little cost and the second could be adapted for more permanent use. Sites previously indicated were at Glasgow Green and near Buchanan Street Station.

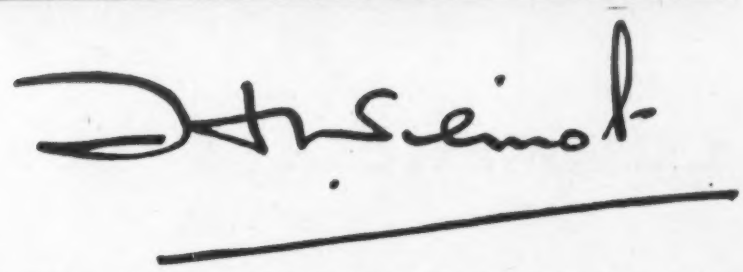
DC8s for Two More Airlines

Canadian Pacific Airlines has announced the purchase of four Douglas DC8s, with an option for five more. Each will be powered by four Rolls-Royce Conway RCo 15 by-pass jet engines, each having a thrust of 18,500 lb. It is claimed that this will make the C.P.A.L. DC8s the most powerful commercial jet transport in the world. In the version ordered 159 passengers can be carried; delivery is scheduled for early 1961. Another order is from Iberia for three DC8s, which will be equipped with four Pratt and Whitney JT3D-1 turbofan jet engines having a take-off thrust of 17,000 lb. each. Iberia will serve Latin America and the United States from Spain with their DC8s.

Comets for C.M.A.

The Compania Mexicana de Aviacion, the Mexican affiliate of Pan American World Airways, has contracted to purchase three de Havilland Comet 4C air liners at a total cost of $14 million, including spares and ramp equipment. Mexicana expect to acquire the first two aircraft in December of this year and the third in mid-1960. They will be placed in operation on the company's Golden Aztec international services, according to Mr. H. Max Healey, general manager of Compania Mexicana de Aviacion. From Mexico City flying time will be 3 hr. 15 min. to Los Angeles (1,580 statute miles), 3 hr. 50 min. to Chicago (1,800 miles) and 2 hr. 30 min. to Havana (1,103 miles). The combination of 7,350-ft. altitude, temperature and runway length in the Mexican capital places certain restrictions on jet operation. Tests of the Comet 4C, which is specifically designed to use the runways of almost all major airports, showed it was best qualified from Mexicana's standpoint. In one of these tests a Comet 4 fully loaded for a flight of 2,680 statute miles to Lima easily operated from the 8,200-ft. runway then in use in hot weather and zero wind.

ELBOURNE MEMORIAL LECTURER



Mr. HAROLD WILMOT, C.B.E., F.R.S.A., M.I.Loco.E., M.Inst.T.

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Presenting the fifth Elbourne Memorial Lecture to the British Institute of Management on the subject "The Management Burden," to which editorial reference is made on page 2, Mr. Harold Wilmot has, since 1949, been chairman and managing director of Beyer, Peacock and Co., Limited, having joined that company in 1924. Born in 1895, he was in the army throughout the 1914-18 war and immediately afterwards served a special postwar apprenticeship with Charles McNeil and Co., Limited, Glasgow. As already indicated, he was invited to join Beyer, Peacock in 1924, and, after occupying a number of executive posts, was confirmed as general manager of the company in 1934. Four years later he was appointed managing director and since then the interests of the group have been greatly diversified. The locomotive works attained the remarkable achievement of exporting more than 99 per cent of their production over a period of 20 years, other than where war controls were concerned. Mr. Wilmot was president of the Locomotive Manufacturers' Association from 1947 to 1950 and has, since 1956, been president of the Locomotive and Allied Manufacturers' Association, travelling widely on its behalf and that of his company. He is chairman of Locomotive House, Limited, a director of the Locomotive Manufacturers' Co., Limited, and a member of the city board of the Royal Exchange Assurance. He was for some years chairman of the North Western Management Research Group and is a past president of the Institute of Cost and Works Accountants (1943-46). A member of the Institution of Locomotive Engineers and the Institute of Transport and a life fellow of the Royal Society of Arts, he is also connected with a number of other learned societies and specialist bodies and served for a number of years on the grand council of the Federation of British Industries. He became a fellow of the Institute of Industrial Administration in 1943 and after two-and-a-half years as member of council of the British Institute of Management, mostly as chairman of its development and regional committee, he was chairman of that Institute from 1956 to 1958, being elected a vice-president thereafter.

INSTITUTE OF TRANSPORT

Fortieth Anniversary Luncheon

A MILITARY EXAMPLE

ON Wednesday this week, the Institute of Transport held its fortieth anniversary luncheon at the Connaught Rooms in London with Mr. Reginald G. Grout, the president, in the chair. The president referred to this happy event with the observation that the Institute might now be thought to have reached the age of discretion. He recalled the original meeting, presided over by the late Lord Ashfield, at which the foundation of the Institute was discussed and said that of those present only three survived, Sir Lynden Macassey, Mr. Walter Wolsey and Mr. David R. Lamb. Only Mr. Lamb was present with them that day; there was, however, no one more closely or keenly associated with those early days of the Institute.

He was delighted at the shipping representation at the lunch, and was sure it would have been bigger but for the launching that day (at Barrow-in-Furness by Princess Alexandra) of the 40,000-ton Orient liner *Oriana*, the biggest postwar passenger liner. He extended a welcome to all the many guests present and was tempted to call it (said Mr. Grout) a "London General Omnibus" welcome, but that might have been taken as a plea for the re-introduction of the "Birch." They were especially glad to have with them Mr. Herbert Morrison, and that a lifetime of service by him had been recognised by his lifetime peerage.

Monty Recalls Services Transport

Field-Marshal Viscount Montgomery, guest of honour, who was accorded a great welcome, promised to illustrate the principle by which service transport was co-ordinated in wartime but mercifully kept brief his remarks in this field. He declared that transport for the services meant all forms of transport and illustrated his point by reference to the campaigns in the Western Desert, Italy and North-West Europe. The Western Desert campaign was supplied over one long road route, but the main point of interest here was that Sir Brian Robertson was on his staff for transport and he (Sir Brian) had taught him a good deal—about the transport racket.

In Italy the campaign did not go well at first, and transport was the determining factor in ultimate success, but it need not have been if there had been a proper plan before the landing. A community the size of Birmingham had been exported to the Continent for the campaign in North-West Europe. The lines of communication extended 250 miles into Belgium within six days and co-ordination of transport became essential. In fact, in war transport was indivisible. Major-General Llewelyn Wansbrough Jones was his D.Q.M.G. (Movements and Transportation) in this sphere.

A Lesson for Today

What had we to learn from transport in the war? It was that transport rarely met both civil and military requirements in war and some form of centralised control was essential. The N.A.T.O. nations, Viscount Montgomery added, did not at present seem to accept this principal. But in peacetime the most efficient use of each form of transport, and the reservation of each for those purposes for which it was best suited were not political but economic problems. Britain was a supreme example of the case for re-examining the transport problem. A lot of traffic that should go by rail was being carried by road and traffic that was being carried by rail could well go by road. Surely road and rail could live together without cutting one another's throats. We were approaching the problem quite piecemeal, taking each form of transport in isolation; where was the master plan? Good planning and discipline also was essential in peace just as it was in war. He ended with the thought that Sir Eric Geddes, the first president of the Institute, had said it all 40 years ago.

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Forthcoming Events

Until November 11.—International Motor Show. At Turin.

November 9.—Institute of Road Transport Engineers. Annual dinner and dance. At Piccadilly Hotel, W.1. 6 p.m.

Institute of Road Transport Engineers (West Regional). Paper by Mr. V. E. Gough, "Air Suspension." At the Liverpool Architectural Society Rooms, Bluecoat Chambers, School Lane, Liverpool 1. 7.30 p.m.

Institute of Transport. Papers on "Fares Structures"; by Messrs. J. L. Grumbridge, "Air"; A. W. Tait, "Rail"; and A. F. R. Carling, "Road." At 66 Portland Place, W.1. 5.45 p.m.

November 10.—Electric Railway Society. Paper by Mr. W. H. Bett, "Reminiscences of an Electric Railway Traveller." At Engineering Centre Stephenson Place, Birmingham, 2. 7.15 p.m.

Institute of Transport (Yorkshire). Paper by Mr. R. A. Loraine, "The Travel Agent." At Griffin Hotel, Leeds. 6.30 p.m.

Institution of Road Transport Engineers (Midlands). Paper by Mr. V. E. Gough, "Air Suspension." At Exchange and Engineering Centre, Stephenson Place, Birmingham. 7.30 p.m.

British Institution of Radio Engineers. Paper by Mr. E. Wolfendale, "The Use of Transistors in Communications and Control." At University Club, Liverpool. 7 p.m.

November 11.—B.R. (Southern) Lecture and Debating Society. Paper by Mr. M. Knockhold, "The Work of H.M. Customs." At Chapter House, St. Thomas's Street. 6 p.m.

Institute of Transport (Humberside). Annual dinner and visit of the president. At Guildhall, Kingston upon Hull. 7 for 7.15 p.m.

Institute of Transport (Southern). Paper by Cmdr. D. H. McMillan, "Some Aspects of Tides and Tidal Models." At Southampton University. 5.45 p.m.

Institute of Road Transport Engineers (East Midlands). Paper, "Recent Development in Fuel Injection Pump Design." At the Mechanics Institute, Nottingham. 7.30 p.m.

Institute of Road Transport Engineers (Southern). Paper by Cmdr. R. A. Gould, "Development of Motive Power for Lifeboats." At Cambridge Hotel, Southsea. 7.30 p.m.

Institute of Road Transport Engineers (South Eastern). Paper by Mr. L. P. F. Drake, "Research and Test Procedure in Connection with Automotive Fuels." At Saracen's Head Hotel, Ashford. 7.30 p.m.

November 12.—B.R. (L.M.R.) Lecture and Debating Society. "Railways—The Next 30 Years." Paper by Mr. C. Hamilton Ellis. At Clerical Staff Dining Club, Cardington Street, N.W.1. 5.45 p.m.

Institute of Road Transport Engineers (Yorkshire). Annual dinner and dance. At Fountain Hall, Bradford 1. 6.30 p.m.

Institution of Civil Engineers. Discussion introduced by Messrs. F. Fawcett and E. F. Beatty on "Track Maintenance and Renewal, With Particular Reference to Length of Possession." At Great George Street, S.W.1. 5.30 p.m.

Institute of Transport (South Western). Paper by Mr. S. A. Finnis, "Docks Management." At Great Western Hotel, Exeter. 12.45 p.m.

November 13.—Institute of Transport (Midland). Annual dinner and visit of president at Queen's Hotel, Birmingham. 7.30 for 8 p.m.

Institute of Road Transport Engineers (South Wales). Paper by M. E. J. Robins, "Transport Painting." At the South Wales Institute of Engineers, Park Place, Cardiff. 7.15 p.m.

Institute of Road Transport Engineers (Scottish). Annual dinner and dance. At Grand Hotel, Glasgow. 7.15 p.m.

Institute of Transport (East Midlands). Paper by Mr. E. W. Arkle, "Modernisation on the London Midland Region of British Railways." At Staff Training College, Derby. 7.15 p.m.

November 13-21.—Scottish Motor Show. At Kelvin Hall, Glasgow.

November 14.—Railway Correspondence and Travel Society (Sussex and Kent). Paper by Mr. A. Cook, "And now the L.M.S." At the Railway Hotel, Brighton. 6.30 p.m.

Thornycroft Mastiff Super Freighter Tested

(*Continued from page 9*)

the earlier double-dip pair of headlamps is available when preferred.

We found that the new cab provides all the comfort and convenience developed in recent Thornycroft vehicles, with improved visibility due to the elimination of the front corner pillars. Interior fittings include a wide shelf below the windscreen with two cubby holes under, a useful shelf just below the roof, two coathooks and two ashtrays, a cab light with a reading-light lens formed in the cover and a very useful small light mounted underneath the instrument binnacle that illuminates the area around the pedals and the driver's doorway. The driver's seat is adjustable for height and reach and that most useful Thornycroft feature, the 3-in. steering wheel height adjustment, has been retained.

Width on the passenger's side is rather restricted, but a modified engine hood about to be introduced will provide an additional 1½ in. Cab entry and exit is easy with the aid of steprings on the wheels and stout handrails on the cab rear quarters and insides of the doors. This despite the fact that the door opening angle is limited somewhat by the windscreen glazing rubber—a restriction that will be eliminated by a modification now in hand. There is provision in the cab for a fresh-air heater and demister with two-speed fan and a quilted engine bonnet cover is another available optional extra.

14-Ton Load

As already mentioned, the Super Freighter is designed for operation at 20 tons all-up weight and naturally the payload capacity will vary according to the body type fitted. The vehicle tested was fitted with a Thornycroft light-alloy platform and headboard 21 ft. 4 in. in length weighing 8 cwt. In this form a full 14-ton payload was added to bring the gross weight to 20 tons and the whole test was run at this weight plus a crew of two. With a load of ballast weights evenly distributed over the platform, the total weight was correctly proportioned 4 tons over the front axle and 16 tons over the bogie. The test was carried out in the Basingstoke area in order that simulated motorway running could be observed over the Winchester by-pass, no similar facility being available in the vicinity of our standard route.

It became obvious within a very few minutes of taking over the wheel that the six-by-two Mastiff has a very high performance indeed for vehicles in this class. We have always been advocates of a big engine working well within its capacity and the immediate benefits to be derived from this practice were never more in evidence than in this new Thornycroft, in which the QR6 is allied with well-matched gears and inbred soundness of general design. These, combined with well-placed controls, the excellent cab appointments already mentioned and the optional power assistance for the steering, reduced the physical effort and strain of driving a heavy vehicle to a minimum and released the maximum of the driver's attention for outside events. Engine and general noise level was exceptionally low, aided in the test vehicle by the use of the optional quilted bonnet cover, so that conversation at normal voice level was possible in the cab at all levels of performance.

Great Flexibility

The intermediate of the three axle ratios—6.14 to 1—was fitted and this is intended as the standard arrangement for normal usage. The test vehicle also had the optional overdrive, which gives six forward speeds and an ideal ratio spread for trunk-haulage work, providing with this final drive fully laden performance from gradient ability of 1 in 4 to good acceleration to a top speed of about 53 m.p.h. The higher axle ratio offered (5.373 to 1) gives a top speed in overdrive of over 60 m.p.h. On the undulating route selected it was found that much of the running could be done in overdrive (overall ratio 4.97 to 1), indicating that the higher axle ratio could safely be specified, with benefit to economy, for vehicles intended for use principally on the country's main trunk routes. Use of the lower (6.83 to 1) axle ratio would obviously provide excellent trailer-hauling capacity with the big engine, while operators in predominantly flat country will appreciate the opportunity of exploiting the greater economy potential of the smaller NS6 engine.

The test vehicle with its load of 14 tons was a delight to drive; the picture shows another cartridge being connected in the braking-distance measurement magazine

Acceleration performance was measured in our usual way by making four runs, two in each direction over a fairly flat piece of road. Average times to reach 20 m.p.h. and 30 m.p.h. from rest were 15.5 and 32.5 sec. respectively—30 m.p.h. being passed in the very useful fourth gear. Pulling away in direct drive from speeds as low as 8 or 9 m.p.h. was smooth and quiet, acceleration from 10 to 20 m.p.h. taking an average of 18.8 sec. and to 30 m.p.h. 39.5 sec. Ample power and easy gear-changing produced a fast climb of Farleigh Hill, where a fairly easy restart in second gear on a gradient of about 1 in 8 was found to be possible.

Many evidences of the extreme flexibility of this Thornycroft engine - transmission combination hauling 20 tons were forthcoming. Ability to use overdrive for long periods on undulating main roads has already been mentioned and on one occasion this was held for demonstration purposes, over a hill crest right down to a recorded 11 m.p.h., whereafter, the crest surmounted, acceleration was smooth and rapid. Worting Hill, a longish but not very steep hill on the Basingstoke—Whitchurch road equivalent to our standard observed section over Worms Heath, showed up this quality in even better degree. On the lower slope, where the average vehicle of this weight is already making heavy going in top gear, the Super Freighter was still accelerating at 35 m.p.h. in overdrive and the crest was breasted at 17 m.p.h. in fourth gear —about two gears higher and 10 m.p.h. faster than average.

Brakes to Match

Brakes to match performance in other respects are provided by the air servo hydraulic system described in an earlier paragraph, which has a specific lining area of over 52 sq. in. per ton gross laden weight. In a series of simulated emergency stops there was notable absence of bucking or wheel hop of the bogie, as is occasionally experienced with six-wheelers and this good adhesion and stability was reflected in relatively short stopping distances. A best distance of 53 ft. from 30 m.p.h. on dry level tarmac was recorded, while a longest distance of 56 ft. was returned on a slight downgrade with a rather polished surface that caused early locking of both offside rear wheels.

A test for brake fade was carried out during a descent of Farleigh Hill. Not steep enough to heat the brakes very much in a coasting run, the vehicle was driven down the hill in direct drive on full engine for about a mile while the speed was held to about 25 m.p.h. on the footbrake. With everything nicely warmed up a full application produced a Don meter reading of 62 per cent, substantially the same as the average reading obtained with cold brakes. Evidence of the efficiency of the Neate handbrake once the slack had been wound up was the Don meter reading of 38 per cent recorded in stops from 20 m.p.h.

Fuel Economy

It might be thought that the superior performance of the big engine would result in some sacrifice of fuel economy, but this proved far from the case. Three fuel-consumption checks were made, one under average trunk road conditions, one under simulated motorway conditions at a higher speed and one of the total fuel used in the full day's running. The first test was carried out in a 24-mile return run on A30 and A33 between Basingstoke and Winchester. The outward 12 miles of this undulating two-lane road was covered in 23 min. for a fuel consumption of 13 m.p.g., while the return run, which had a slight uphill bias and on which we were baulked on a number of occasions by slower heavy traffic, brought the overall average fuel consumption to 11.5 m.p.g. at an average speed of 30 m.p.h. This gives the outstanding gross ton/m.p.g. figure of 230 and is a fair indication of what the vehicle can be expected to do in fully laden trunk service on not-very-open roads.

The "motorway" check was carried out over the 10-mile length, out and back, of the Winchester by-pass. In this run the vehicle returned 9,26 m.p.g. at an average speed of 39 m.p.h., a performance the more notable for the facts that the outward run was rather restricted by a succession of heavy vehicles which there was only just room to overtake and on the return run the traffic lights on the Winchester—Eastleigh intersection were at red as we approached, bringing us down to fourth gear and 20 m.p.h. There were also two accelerations from rest at the start of each leg and actual operation on motorways could be expected to show improvement on our figures both in fuel consumption and speed, apart from the advantage from the use of the higher axle ratio which would be recommended for that type of operation.

Total mileage covered during the test was 65 and this comprised a large measure of full-power work in the lower gears and many stops necessitated by our various tests. Total consumption of rather under 7½ gal. gave the overall figure of 8.7 m.p.g., indicative of about the worst result likely from a vehicle in all fully loaded service in very confined and hilly conditions.

The Super Freighter completes the Thornycroft range of goods chassis for operation at maximum gross weights on two, three and four axles. All conform to a general pattern of design from the outset having ample power, generous reserves of strength, optimum brake equipment and better-than-average conditions for the driver. They can thus be expected to provide the maximum safety and long-term economy of operation in trunk haulage. The Trusty and two-axle Mastiff have already established a reputation in line with these expectations; we predict that the newcomer will be no exception.

Small and Parkes, Limited, has installed Telex at its registered offices and works, Hendham Vale, Manchester, 9 (Telex 66161, answer back code—DON, Manchester) and at the London office, 251 Kingston Road, S.W.19 (Telex 25439, answer back code—DON, London).

CARS · COMMERCIALS · ACCESSORIES

SCOTTISH MOTOR SHOW

KELVIN HALL GLASGOW
13th to 21st NOVEMBER 1959

Daily except Saturdays, Tuesday and Wednesday.

	10 a.m. to 5 p.m. 5/-	5 p.m. to 9 p.m. 2/-
Saturdays	10 a.m. to 2 p.m. 5/-	2 p.m. to 9 p.m. 2/-
Tuesday 17th	. . . . .	**10 a.m. to 9 p.m. 5/-**
Wednesday 18th	10 a.m. to 5 p.m. 10/-	5 p.m. to 9 p.m. 2/-

Children under fourteen years (14) half price throughout.

LONDON TRANSPORT TROLLEYBUS CONVERSION

Large Scale Use of RM Buses

FOURTH STAGE ON NOVEMBER 11

WHEN the fourth stage of the London Transport trolleybus conversion scheme takes effect on Wednesday, November 11, the new 64-seat RM type will be involved for the first time—previous conversions have employed RTs. Three trolleybus routes, totalling 26.2 miles, are affected by the scheme. They are routes 567 (Barking or West India Docks—Aldgate—Smithfield) 9.42 miles; 569 (North Woolwich—Canning Town—Aldgate) 6.95 miles; and 665 (Barking—Aldgate—Bloomsbury) 9.85 miles. Because these routes use stretches of road in common with other trolleybus services, the actual mileage of road from which trolleybuses will disappear at this stage is 6.2 miles. A number of improved facilities for passengers, made possible by the greater flexibility of diesel buses, will be provided.

RM-type buses in Poplar depot ready for the trolleybus conversion

The conversion of these routes will mean the end of trolleybus operation at Bloomsbury and Barking and along most of Barking Road. One section thereof—between Canning Town and East Ham—will still be served by other trolleybus routes which are not due for conversion until a later stage. In all 71 RM type buses will be needed for the changeover.

New Bus Services

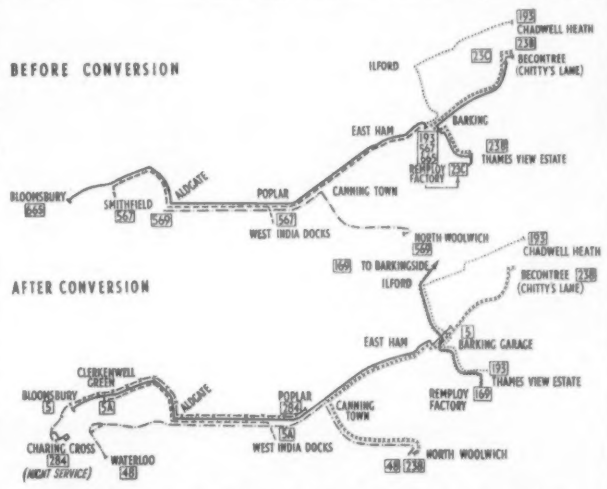
A new daily bus route 5 will replace trolleybus routes 567 and 665. The new service will run between Barking Garage and Bloomsbury (Red Lion Square), over the trolleybus route, via Barking Broadway, East Ham, Upton Park, Plaistow, Canning Town, Poplar and Aldgate (Gardiners Corner). The short 300-yd. section of route 567 between Clerkenwell Road and Smithfield is not being replaced as only about 50 passengers a day have been using the trolleybuses over this stretch. A new bus route 5A will run between Clerkenwell Green, Aldgate and West India Docks all day Mondays to Fridays to replace the present peak hour only journeys operated by the 567 trolleybuses between the docks and Aldgate. It will not run at weekends.

The new 5 bus service will be specially strengthened by adjustments to existing bus routes 15, 23 and 40 which parallel it for parts of its route so as to give a comparable service to that provided by the 567 and 665 trolleybuses. Bus route 15 (at present East Ham—Ladbroke Grove) will run to and from East Ham all day and not only in the rush hours as now, and on Sundays 15 between the West End and districts east of Aldgate will be improved. Bus route 23 (Becontree Heath—Marylebone) will be increased between Barking and Aldgate all day on weekdays, and, in an attempt to overcome the effects of West End and City traffic congestion on the eastern end of the service, the route will be run in two parts on Mondays to Fridays. One section will operate between Barking and Marylebone and the other between Becontree and Aldgate avoiding the worst of the in-town congestion. Through journeys will be run in peak hours between Becontree Heath and Marylebone as at present. On Sundays, route 9, which takes over the 23 service along the Barking Road, will be increased between Poplar and Aldgate.

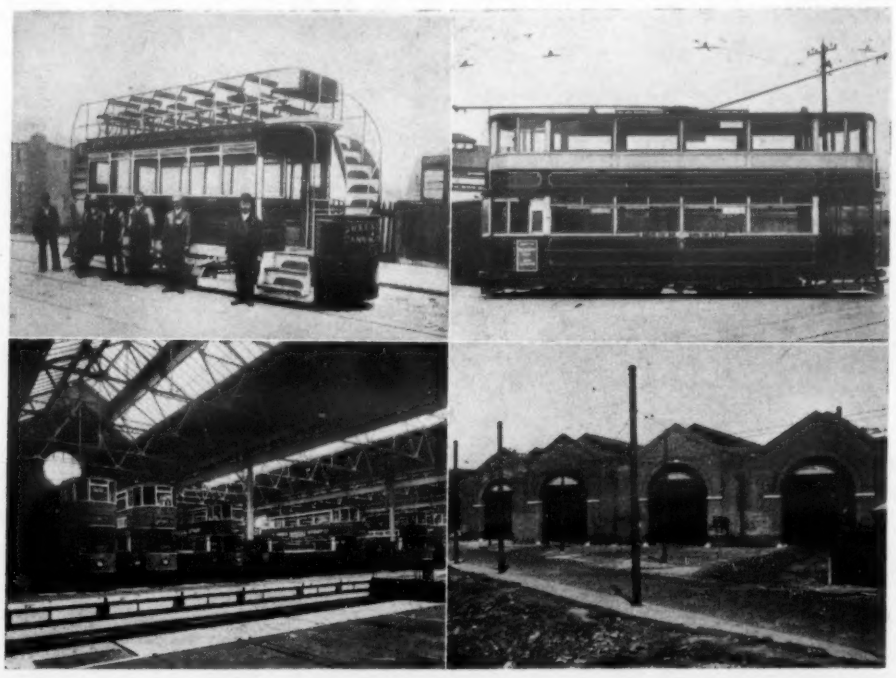
Division to Avoid Delays

Bus route 40 (Wanstead—Herne Hill) will be increased on Mondays to Fridays between Poplar and Aldgate all day and, to reduce delays caused by traffic congestion at London Bridge and in the City, will also be run in two parts so as to give more regularity in the Wanstead area. One part will run between Wanstead Station and Aldgate and the other between Wanstead Flats, Camberwell and Herne Hill. A new daily bus route 48 will replace trolleybus route 569 (North Woolwich—Aldgate) and will be extended via Bank, Ludgate Circus and Fleet Street to Waterloo on Mondays to Fridays. During peak hours it will operate between North Woolwich and Waterloo and in the off peaks between Poplar and Waterloo, but it will not run after the evening rush hour. On Saturdays it will only operate special journeys for dockers between Aldgate and North Woolwich during the morning and midday period. On Sundays it will run up to about 2 p.m. between Aldgate and Poplar with some early morning journeys to North Woolwich.

Another new weekday bus route—238—will run from Becontree (Chitty's Lane) to Barking and Canning Town with peak hour extensions to Silvertown and North Woolwich on Mondays to Fridays, there will be no Sunday service. This route will give people living in Barking and East Ham a direct service to the Silvertown factory area. The all-night service now provided by trolleybus route 665 will be replaced by a new night bus route 284 to run between Poplar and Charing Cross. The service will operate over the 665 route from Poplar to Bloomsbury and then continue to Trafalgar Square via Shaftesbury Avenue and Piccadilly. One early morning journey will run to Barking.



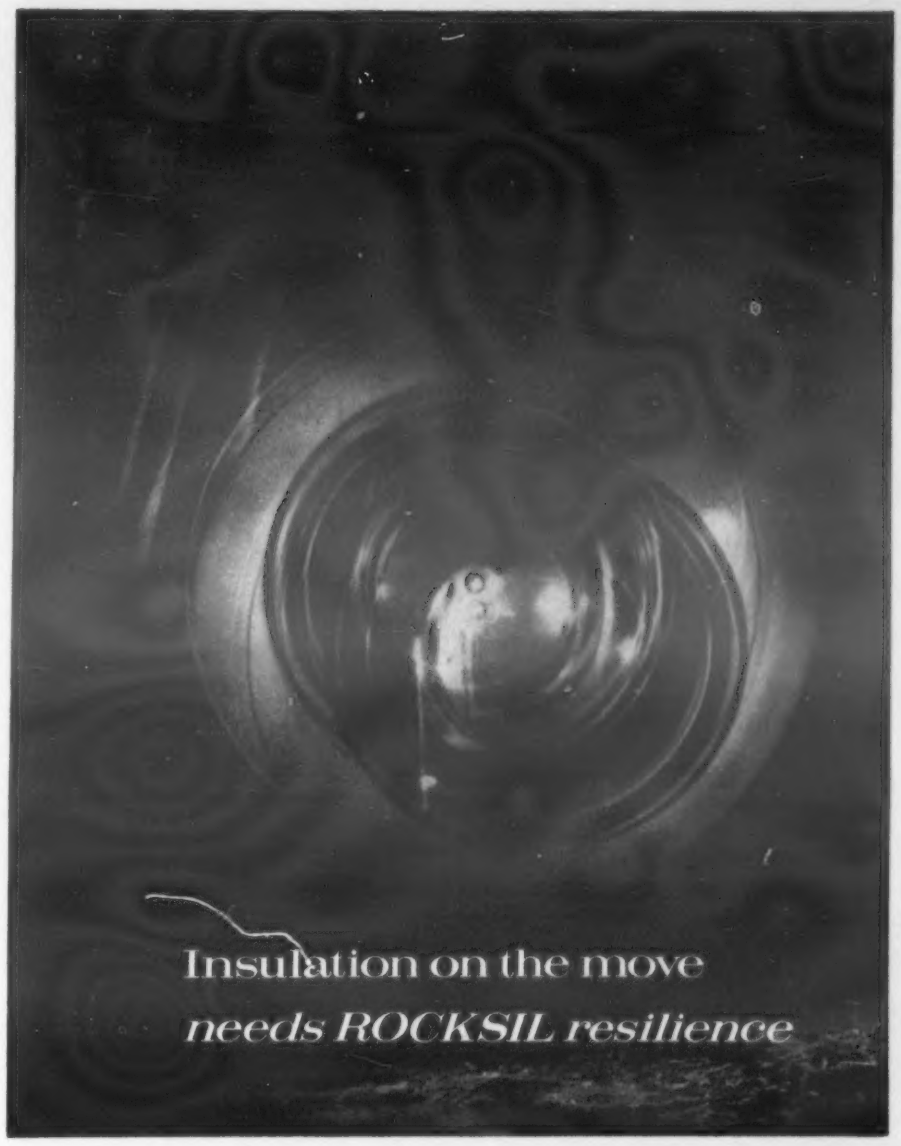
Trolleybus routes involved in the fourth stage of the London Transport replacement scheme and the bus routes which replace them on November 11



A horse tram of the North Metropolitan Tramways on its isolated Canning Town—Greengate route in the nineties; a West Ham car in an experimental livery applied shortly before the London Transport takeover. Below, interior and exterior views of Poplar depot taken respectively in 1936 and 1954

In the Barking area, the service to the Thames View Estate is to be improved by the extension of route 193 (Chadwell Heath—Barking Broadway) into the estate in place of route 23B which is to be withdrawn. The 193s will have a temporary terminus at Chelmer Crescent and will move to a permanent terminus at Stapleton Way when it is ready for buses. The section of the withdrawn 23B service between Becontree and Barking will be covered by the new 238 service (Becontree—North Woolwich). Route 169 (Barkingside—Barking Broadway) will be extended to provide the journeys to the Remploy Factory now operated by route 23B.

(*Continued on page* 14)



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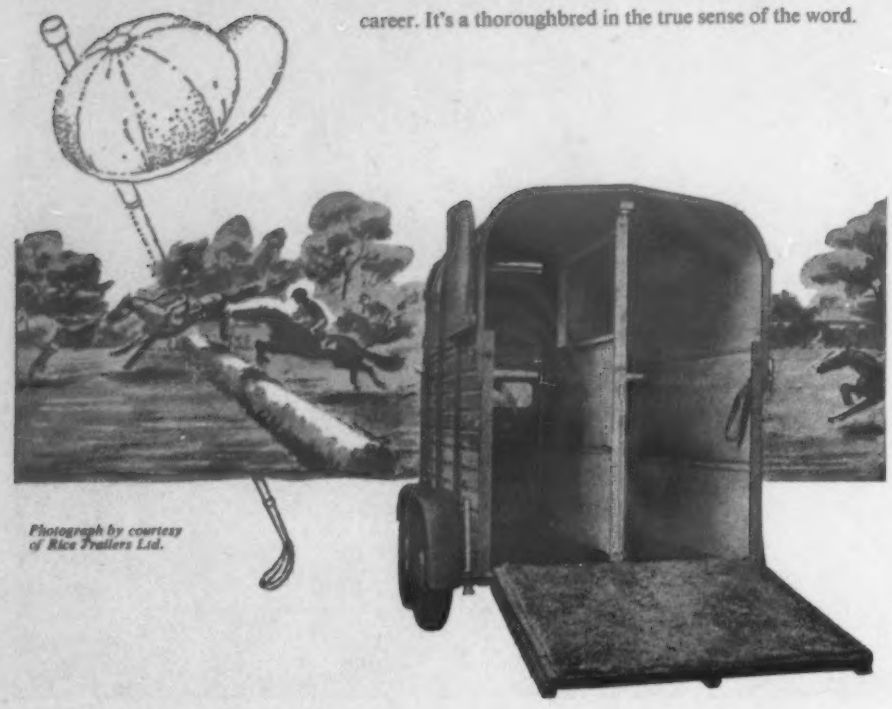

Photograph by courtesy of Rice Trailers Ltd.

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BM 211

Fourth Stage of L.T.E. Trolleybus Conversion

(Continued from page 13)

The trolleybuses being displaced are operated from the depots at Poplar and West Ham. Both are being converted to make them suitable for diesel bus operation, but only Poplar will go over completely to diesel buses at this stage. At West Ham, buses and trolleybuses will be operated side-by-side until a later stage of the conversion scheme. Poplar will operate 58 RM buses and for the time being there will be 15 RMs at West Ham—these figures include a spare vehicle at each. Some 270 drivers and 50 maintenance staff at the two depots have taken special conversion courses to enable them to drive and maintain diesel buses.

Poplar Depot Reconstruction

Poplar is a large depot which on conversion will have accommodation for 196 RM type buses. Six 5,000-gallon above-ground tanks for bus fuel have been installed to the right of the entrances from Leven Road, at the south end of the building, with a machine room, next to the tank enclosure, containing the pumps for transferring the fuel to the four new fuelling islands. The islands are in line with the centre of the three entrances from Leven Road and are 120 ft. from it. They will have the standard London Transport automatic fuelling nozzles and points for dispensing lubricating oil and radiator water, as well as vacuum cleaning hoses for use while the buses are being refuelled.

From the fuelling islands, the buses will converge on a Februat vertical-brush washing machine 95 ft. farther into the garage and then be driven by garage staff to their places in the parking area. The area available for parking is being increased by filling in those inspection pits which are no longer required, removing the turntable traverser and filling in the traverser pit. The pits in the maintenance area at the north end of the garage are being shortened to 33 ft. and modernised. When completed, there will be five modern-type tiled pits, fitted with tungsten lighting, linked by a communicating pit at the north end. Four other pits, normally covered, are provided for emergency use. The various offices, workshops and stores on the east, west and north sides of the garage, are being adapted as necessary to fit them for their new role. The work includes the provision of a new automatic oil-fired boiler installation with a 3,000-gallon fuel tank, a sprinkler system, and a compressed-air ring main delivering air at 200 lb. per sq. in. to points all round the parking and maintenance areas.

Once trolleybus operation has ceased, the work of removing overhead wires, switchgear, etc., not required for bus operation will be started. Poplar depot has 63 trolleybuses of the L3 type introduced in November, 1939. They are A.E.C. chassisless vehicles with Metropolitan-Cammell-Weymann bodies.

Alterations at West Ham

West Ham depot is being converted in stages to diesel bus operation, and will have only 15 buses of the RM type in the first stage, continuing to operate trolleybuses and diesel buses side by side. Buses enter from Greengate Street, which runs along the east side of the garage, and drive into a building adjacent to the road. This building was used, and for a time will still be used, for trolleybus cleaning, and one of the two cleaning gantries is being retained. It will be used for work on the upper deck of buses such as window replacement when it is no longer required for cleaning purposes. The pits used for trolleybus inspection have been filled in with the exception of one which will be used for chassis cleaning purposes.

At the entrance, four fuelling islands of the standard type have been provided, fed with diesel fuel from six 5,000-gallon external tanks along the east side of the building. On the same side of the building are the machine room containing the fuel pumps, the vacuum cleaning plant, and various rooms used by the engineering staff. At the south end of the building, near the exit, a Februat vertical-brush washing machine is being installed. When they have passed through this, buses turn to the right into the main building, which will have parking space for 186 buses. On the east side of this area, towards the north end, are three supplementary pits and an enclosure for two tower wagons and their crews. Beyond this enclosure is the exit from the parking area to the forecourt and thence to Greengate Street. As the building is of the through type, no traverser was provided.

New Boilers

To the right of this exit, at the end of a two-storey block built along the east side of the parking area, is the maintenance area, in which the former pits and side pits, used for trolleybuses, are being adapted to give four maintenance pits each capable of taking two buses at once. Additional rooms are being provided at the end of the maintenance area to accommodate stores, batteries, etc. As at other depots being converted, the opportunity has been taken to replace the former solid fuel boilers by an automatic oil-fired installation. A compressed air ring main and a sprinkler system are also being fitted. Minor improvements to accommodation are being made, and better lighting and ventilation are being provided, the latter particularly where diesel fumes are likely to accumulate. Most of the rooms and offices are being redecorated.

The overhead wiring and certain other equipment will be retained until trolleybus working at the depot ends at a later stage of the conversion scheme. The original substation backing on to Greengate Street will then be removed and such electrical equipment as is still required will be accommodated in a smaller existing building 50 ft. along the road. West Ham depot was a former tram depot of West Ham Corporation. When opened on October 25, 1906, it contained 1¼ miles of track and had room for 150 tramcars. In 1933 it was transferred to the London Passenger Transport Board which commenced adapting it for trolleybuses in 1936. The present work of conversion started in January, 1959. Trolleybuses started working from the depot on June 6, 1937, conversion being carried out in stages. There are, at present, 141 trolleybuses at West Ham of several types, including E1, E2, J2, L3, M1, N1 and N2.

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SWISS RAIL LINK

Between Lucerne and Engelberg

JOINING UP AN ISOLATED SYSTEM

WORK is to begin in December next on an important railway project in Switzerland, which (apart from the short branch of the Martigny—Orsières Railway from Sembrancher to Le Châble and the still unfinished connecting line between the Cornavin and Eaux Vives stations at Geneva) will be the first new railway construction to be undertaken in that country for some time past. The new line, which will involve some costly engineering work, is to connect the metre-gauge Brünig section of the Swiss Federal Railways at Hergiswil, 5¼ miles from Lucerne, with the Stansstad—Engelberg Railway just to the south of Stansstad, so permitting through railway service between Lucerne, Stans and Engelberg in place of the present steamer and rail access to the Engelberg valley.

The Stansstad—Engelberg Railway, 14¼ miles long, was opened in 1898 and between then and now has seen no more than a limited amount of modernisation. Up the valley of the Engelberger Aa it has a ruling gradient of 1 in 40 past Stans and Wolfenschiessen to Obermatt, but a handicap in journey time is caused by the 1 in 4 rack-and-pinion section from Obermatt to Gherst, which though only ⅞ mile long requires at present 20 min. to negotiate, and the provision of 12 small four-wheel rack-and-pinion locomotives stationed at Obermatt in order to work the trains up and down.

One of the present trains

Relative Journey Times

Hitherto speed over the Stansstad—Engelberg line has been limited to 25 m.p.h. on the adhesion section, with numerous speed reductions for the sharper curves, and coupled with the 20 min. on the rack section, the 14¼-mile run requires from 60 to 65 min. Most of the connecting services by the Lake of Lucerne Steamship Company's steamers and motor vessels include intermediate calls, and so take from 35 to 65 min. between Lucerne and Stansstad. The fastest journeys between Lucerne and Engelberg therefore cannot at present be made in less than 1 hr. 40 min.; the average time is about 2 hr.

As there is now a good motor road up to Engelberg, crossing the westernmost arm of the lake (at the narrow entrance to the Alpnachersee) by a swing bridge, the railway service to and from Stans and Engelberg is subject to severe competition. On the completion of the Hergiswil—Stansstad link and the rebuilding of the Stansstad—Engelberg line, however, the Lucerne—Engelberg time by fast trains is to be reduced to 50 min.

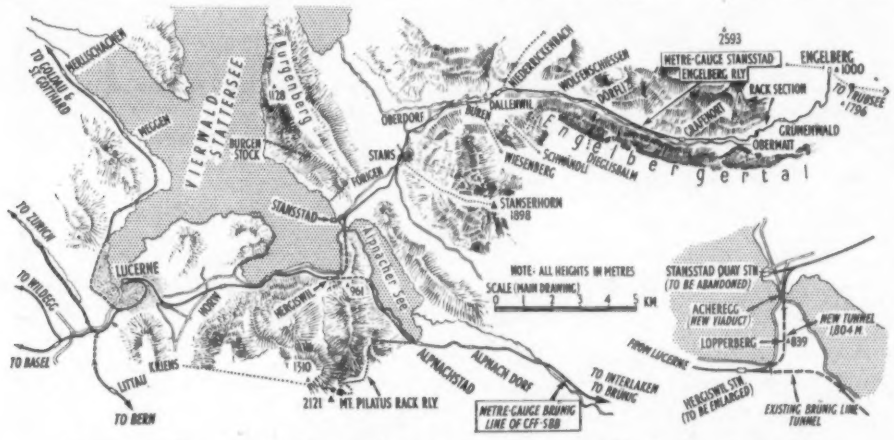
Obstacle

The principal natural obstacle to the building of the new line is the Lopperberg, a mountain ridge forming the southern buttress to Pilatus, which is already pierced by the Brünig line tunnel; this will require a new tunnel 1,804 metres (1 mile 212 yd.) in length, beginning at Hergiswil immediately to the south of the Brünig tunnel; Hergiswil Station is also to be enlarged.

By means of a lateral gallery driven into the mountain from the lake shore, boring will begin in both directions from the centre of the tunnel simultaneously with that from the two ends, and with four working faces it is hoped to complete the tunnel by the summer of 1961. Like the Brünig line tunnel, it will be of dimensions large enough to accommodate standard-gauge wagons mounted on metre-gauge wagons, and this facility for through transport of freight to and from the main Swiss Federal Railway system will be of considerable benefit to the whole area served by the Stansstad—Engelberg line as far as the beginning of the rack-and-pinion section.

At the southern end of the tunnel the new line will require to cross the entrance to the Alpnachersee at Acheregg by a reinforced concrete viaduct giving a headroom of 24 ft. 6 in. above the lake level. This will make necessary alterations to the steamers and motor vessels of the steamship company which work to and from Alpnachstad, to enable them to pass under, and for the work a sum of £52,000 is provided in the estimates. The existing road swing bridge is to be abolished; a final decision has not yet been reached as to whether to combine the new road and railway bridges in a single structure, or to build them separately.

The present railway station at Stansstad pier will be abandoned, and a new station built a short distance away, at the end of the viaduct, with a short spur line to give access to the railway company's car sheds and workshops. From Stansstad onwards the railway is to be reconstructed in order to permit the raising of the speed limit from 25 to 47 m.p.h.; this will require a more substantial track structure and a reduction in the sharpness of as much of the curvature as possible. On the rack-and-pinion section the permissible speed will be raised to 10.6 m.p.h., and with the abolition of the stop at Obermatt to attach the present rack locomotives, the time for negotiating the rack will be reduced from 20 to 7 min. The current system is to be changed from the present 870 volts d.c. to the Swiss Federal standard of 15,000 volts a.c., in order to permit through running over the latter's tracks between Hergiswil and Lucerne. New signalling will be installed over the latter section, to cope with the increased traffic, and a new platform is to be provided in Lucerne station to accommodate the Engelberg trains.



Stansstad—Engelberg Railway and connection proposed to Hergiswil and Lucerne

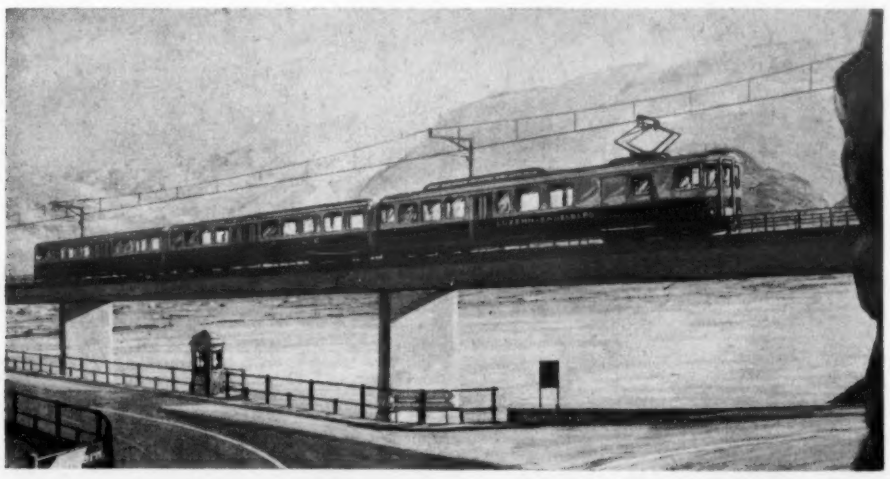
The proposal for the new railway link and the modernisation of the existing Stansstad—Engelberg Railway was outlined in MODERN TRANSPORT of August 29. It was first brought before the

(*Continued on page* 18)

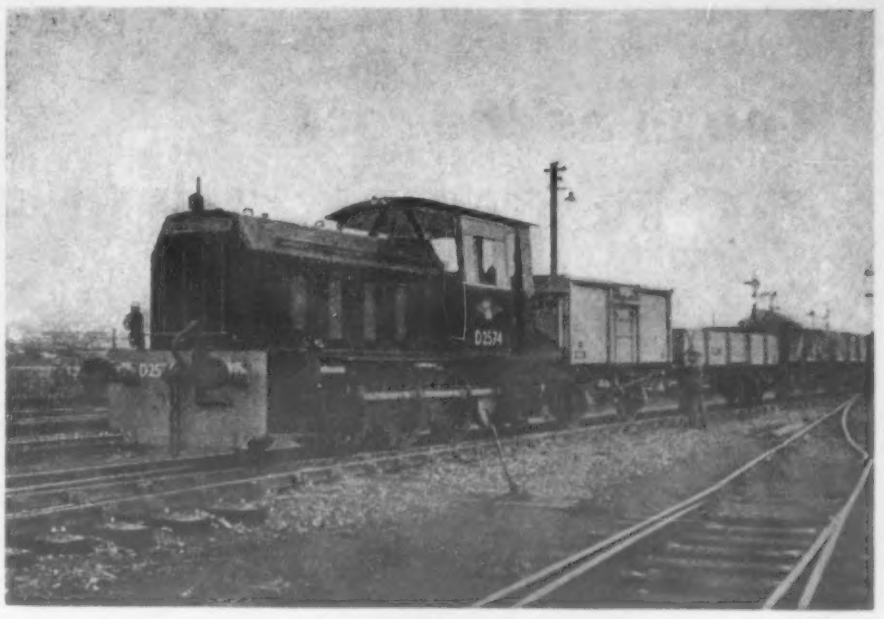
Trains

For the passenger service six new three-car train sets of the latest type are to be built, each comprising a motor coach and two trailers and providing 178 seats, with space also for up to 42 standing passengers at times of pressure. If necessary, it will be possible to operate six-car or nine-car trains with multiple-unit connections.

The motor coaches will be capable of operating the train sets up and down the rack section without assistance, but in the event of multiple-unit working each three-car train will be worked independently up and down the rack. Some of the older rolling stock will be rebuilt on modern lines in the company's Stansstad workshops to provide for the shorter local runs and for special workings at times of pressure.



Proposed three-coach train set for Lucerne—Engelberg service on the viaduct at Acheregg



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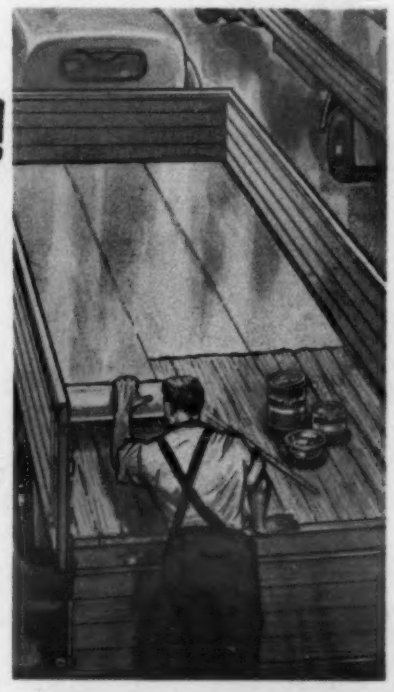

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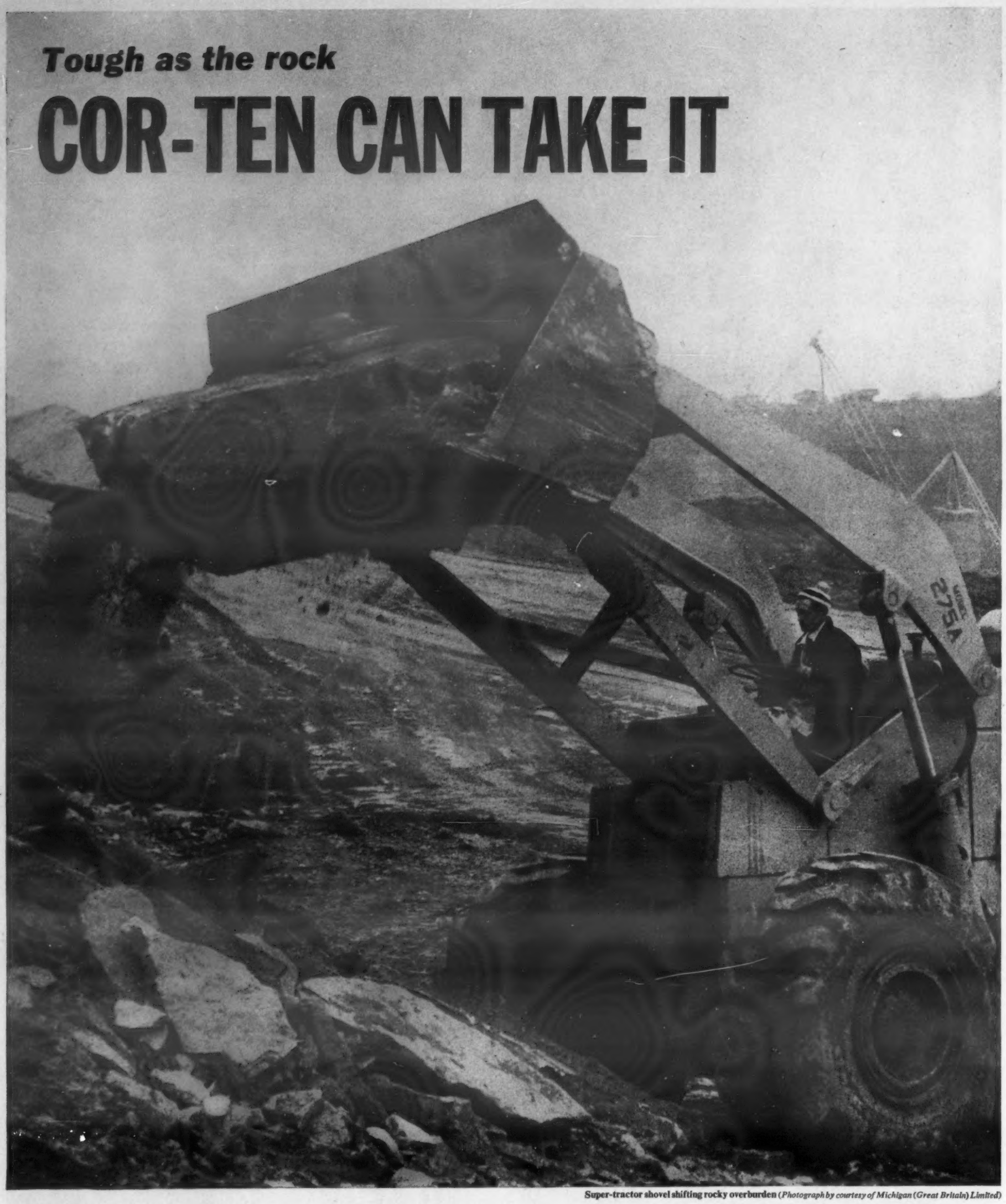

Super-tractor shovel shifting rocky overburden (*Photograph by courtesy of Michigan (Great Britain) Limited*)

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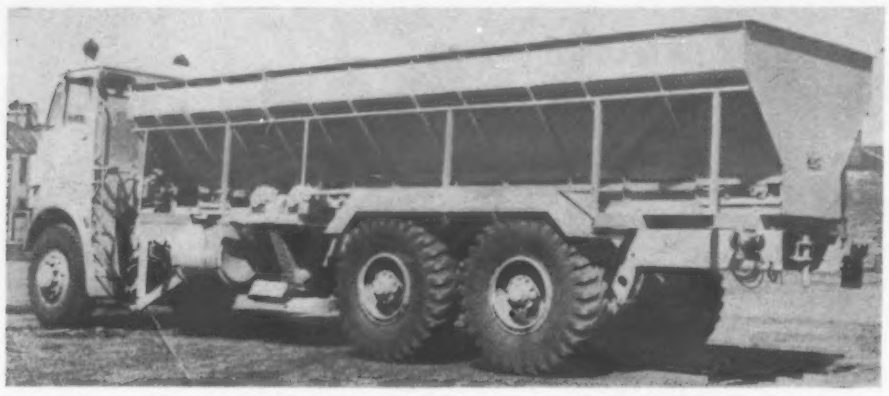
THE MOTORWAY OPENS

A Ministerial Warning

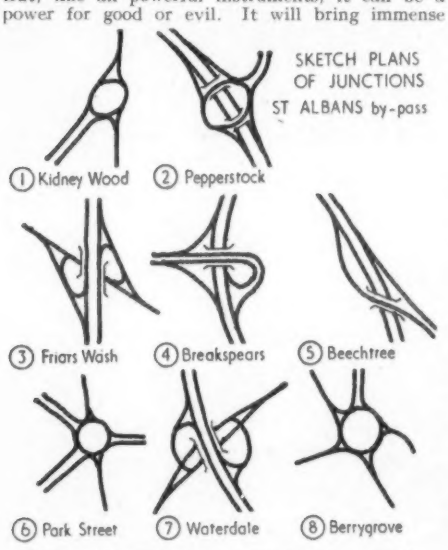
ECONOMIC SURVEY ISSUED

OFFICIALLY opened by Mr. Ernest Marples, the new Minister of Transport, at 9.30 a.m. last Monday, the London—Birmingham section of the London—Yorkshire Motorway came into general use about half-an-hour later, guests at the official opening having been allowed time to disperse before the torrent of traffic developed. In fact, the flow was not all that heavy and the combination of high speeds and carriageways each wider than most main roads in Britain went to make movements seem fewer.

The opening ceremony took place near Pepperstock Junction, where Mr. Harold Watkinson, the previous Minister, had inaugurated work 19 months earlier. Sir Owen Williams, on behalf of all the engineers concerned, formally handed the motorway over to the Minister. In accepting it Mr. Marples said: "This motorway starts a new era in road travel. It is in keeping with the bold, exciting and scientific age in which we live. It is a powerful weapon to add to our transport system. But, like all powerful instruments, it can be a power for good or evil. It will bring immense benefits if drivers use discipline, common sense and obey the rules. But disaster and tragedy may descend on those who drive recklessly or selfishly. For on this magnificent road the speed which can easily be reached is so great that senses may be numbed and judgment warped. The margin of error gets smaller as speed gets faster. New motoring techniques must be learnt. So here are my two mottoes: *Take it easy, motorist,* and *If in doubt—don't.*



One of the Douglas DM66 combined gritter-snowplough units with Rolls-Royce B81 petrol engines



Variety in motorway access as seen on the St. Albans bypass

Speaking at a luncheon given in London by the contractors responsible for the construction of the motorway, Mr. Harold Watkinson, now Minister of Defence, said that even on the basis of the doctrine of collective responsibility Ministers should not display too deep an interest in their previous offices, but he did want to say a few parting words to the great road-building team with which he had been associated for nearly four years.

Immensity of the Task

Those who sometimes said that they knew how to build roads better might care to consider the immensity of the task. It was one in which the local authorities, the engineers, and the technical and administrative staff of the Ministry of Transport all had an essential part to play. Some measure of the load that had fallen upon them is shown by the fact that the rate of new road construction had been increased twenty-fold over the last seven or eight years. When one realised that the time-scale for a major road project was at least three to four years and often more, he thought the greatest praise was due to all those members of this country's road-building team who had worked so hard and so successfully. It would have been only too easy at times to slow down progress by trying to avoid every risk and every possible cause of criticism. He was sure this would have been a wrong policy. Britain must have new roads and have them quickly. Part of the price of pressing on must obviously be criticism as well as praise, but this should be considered as a spur to greater effort rather than as an admonition to play safe.

Earlier Mr. Marples had said, also at the luncheon, that he had been alarmed at the standard of driving displayed after the opening and he would issue a second warning that skill was not enough in itself. It might be that experience would lead them to the conclusion that restrictions were necessary. Meanwhile, they must keep an open mind.

Economic Survey of Motorway

A report has been prepared jointly by the Road Research Laboratory of the Department of Scientific and Industrial Research, and the University of Birmingham, which estimates the effects on traffic to be expected from the opening of the London—Birmingham Motorway (including the St. Albans bypass) and gives an economic assessment relating the motorway's expected benefits to its costs. It is, in fact, a description of a method which could have been carried out for any of the proposed new roads: the London—Birmingham Motorway was chosen because it was the most convenient example of a large-scale project and its construction was being planned. The estimate obtained can be checked later against the figures for actual traffic and costs of the motorway in order to verify and improve techniques of prediction.

In 1955 a survey was carried out to determine the origins and destinations of traffic using existing routes which might be affected by the proposed London—Birmingham Motorway. Journey times were measured. It is on the figures obtained that the subsequent calculations and predictions are based. Vehicles were assumed to transfer to the motorway if they could save time by doing so. The speeds assumed on the motorway were checked by studies on European motorways. Since 1955 there has been an increase in traffic and the 1960 traffic volumes are estimated to be 30 per cent above the 1955 levels. In addition, it was estimated that extra traffic would be generated by the motorway, because of time savings, novelty, ease of driving, etc., and it is estimated that the 1960 traffic volumes may be increased by a further amount up to 30 per cent by this generated traffic.

It is thought that on weekdays in June-July, 1960, the traffic on the motorway, including generated traffic, will be about 18,000 vehicles per day, both directions combined, as an overall average. On the most heavily trafficked section near Luton it is estimated that about 26,000 vehicles per day will use the motorway. These figures are based on 1960 levels plus generated traffic.

The main London—Birmingham route (A5-A45) will be the most important contributor of traffic to the motorway. Traffic is expected to fall on this

(*Continued on page* 18)

The first commercial vehicles to enter the motorway from the Luton spur after its official opening were a Leyland Super Comet and one of the Ribble Leyland Atlantean coaches

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The operator is satisfied—he gets a superbly built matched articulated 8-wheeler, designed to suit his individual requirements and giving greater fleet mobility and more efficient service at less cost than ever before. His customers are satisfied—they can be sure of prompt deliveries, speedy unloading and more storage space—a semi-trailer can always be used as a temporary storage container.

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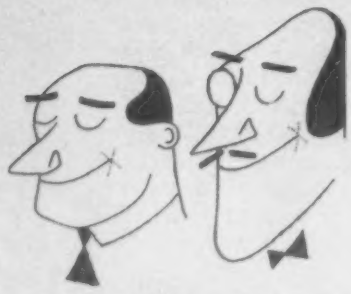
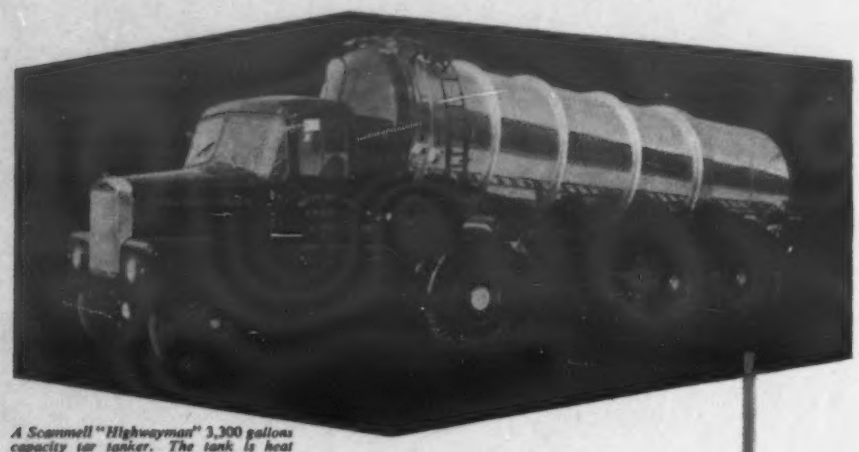


Scammell also produce semi-trailers for loads from 3 to 12 tons fitted with the Scammell automatic and S.A.E. Fifth Wheel coupling gear.



A Scammell "Highwayman" 3,300 gallons capacity tar tanker. The tank is heat insulated and fitted with steam heater tubes. A Scammell radial compressor/vacuum pump mounted on the motive unit is used or discharging or taking on the load.

It will pay *you*
to use transport purpose-built by
SCAMMELL
specialists in the unusual

SCAMMELL LORIES LTD. Head Office & Works: Watford, Herts. Telephone: Watford 25231 and 25691

THE MOTORWAY OPENS

(*Continued from page 17*)

route by about 6,000 to 8,000 vehicles per day. The second most important contributory route would be A41 (London—West Midlands via Aylesbury) and it is estimated that these two routes will contribute about half the motorway traffic. There will be substantial lessening of traffic in places such as St. Albans and Dunstable and appreciable lessening in, for example, Luton, Aylesbury and Warwick.

The re-routing of journeys will cause traffic to rise on roads giving access to the motorway, particularly on A45 between Birmingham and Dunchurch and on A41, the Watford bypass south-east of the Aldenham junction.

Savings of Time and Accidents

The times estimated to be saved by traffic transferring to the motorway is about 1,600,000 vehicle hours per year and the reduced congestion on existing roads should save a further 400,000 vehicle hours per year, making a total of 2 million vehicle hours at 1955 levels. This is equivalent to 1,000 vehicles travelling 40 hours a week throughout the year. On the basis of experience in other countries, accident savings to traffic transferring to the motorway are expected to be about 600 casualties per year, including about 25 fatalities in 1960. However, there may be a small increase in accidents to traffic remaining on existing roads, due to higher speeds.

The time savings and measurable benefits from reduction in accidents were valued and were used in conjunction with savings in petrol, reduction in vehicle fleets and other benefits, to estimate the rate of return as a percentage of the capital cost of the motorway. Allowing for all benefits, less additional costs such as maintenance and including a range of values for savings in persons' leisure or non-working time, it is estimated that the net rate of return in 1960 on the capital cost of the motorway would repay the original capital cost, plus interest, in six to eight years from that date. It is intended to publish the full report as soon as possible as a Road Research Technical Paper, but it has been thought desirable to make it available in duplicated form now. Those wishing to obtain copies of the report should apply to the Road Research Laboratory, D.S.I.R., Harmondsworth, Middlesex, the name of the report being "The London—Birmingham Motorway: Traffic and Economics" (RN/3552).

Motorway Concomitants

Particular stress has been laid upon the provision of adequate maintenance bases for the motorway and upon the need to keep traffic moving. Large hoppers have been built to contain anti-freezing materials for the road surfaces and an order has been placed for four Douglas DM66 combined gritter and snowplough units. These have Rolls-Royce B81 petrol engines and automatic gearboxes and bodywork by Atkinson's of Clitheroe.

Shell-Mex and B.P., Limited, has produced a series of five filmlets, each running for 1-1½ min., demonstrating points of good behaviour in motorway driving. They are intended primarily as television interval fillers but will be available in 16-mm. and 35-mm. form to borrowers. The points illustrated are: parking on the motorway is never permitted; drowsiness at the wheel can

(*Continued at foot of next column*)

SWISS RAIL LINK

(*Continued from page 15*)

Federal Government on January 20, 1959. By March 5 it had been ratified by the States Council and by June 3 by the National Council, by a practically unanimous vote. Of the total estimated cost of £1,833,300 two-thirds will be borne by the Federal Government, and the remaining one-third jointly by the Cantons of Nidwalden and Obwalden, which are the principal beneficiaries and have strongly supported the scheme throughout. The estimated proportions of this sum are £497,750 for the change in the current system from 850 volts d.c. to 15,000 volts a.c.; £767,000 for the new tunnel, the viaduct at Acheregg, the station at Stansstad and the line reconstruction; and £568,600 for the new rolling stock.

Suspension Line Improvements

Associated with the scheme has been the acquisition by the Stansstad—Engelberg Railway of the Engelberg—Brunni suspension line, the capacity of which is to be increased by the provision of new cars of higher capacity. The unusual step also is being taken of doubling the suspension line between Gerschnialp (above Engelberg) and Trübsee, now in progress; the second line, to be completed before the end of this year, will have cars capable of carrying 60 passengers each compared with the 33-passenger capacity of the cars of the present line, and will be able to move as many as 500 passengers an hour up and down at times of pressure, as during the winter sport season. By the new 50-min. communication between Lucerne and Engelberg, it is hoped greatly to increase the popularity of Engelberg both as a winter and a summer resort.

In addition, the town of Stans, capital of the Canton of Nidwalden, will be brought within about 20 min. of Lucerne, instead of 30 to 45 min. by the existing rail and postal-coach service via Hergiswil and from 50 min. upwards by water and rail. Such communities as those of Buochs and Beckenreid, on the western shore of the Lake of Lucerne towards its southern end, also stand to gain considerably in time by fast road and rail transport via Stans. The new scheme owes much for the successful way in which it has been carried through to the initiative and energy of Mr. J. Neuhaus, the recently-appointed manager of the Stansstad—Engelberg Railway, and will add materially to the transport facilities in this part of Central Switzerland. Rather over three years will be needed to carry it through to completion.

Well known as agency and interline manager of B.O.A.C. for the past seven years and for his connection with B.O.A.C. and Imperial Airways, which extended back to 1934, Mr. A. C. "Wickham" Hughes retired on September 30. In his stead Mr. Kenneth Everall has been appointed agency manager.

(*Continued from previous column*)

have disastrous consequences—keep alert; when changing lanes it is essential that the road is clear behind as well as in front and signals must be given in good time; no one is allowed to turn in the carriageway or across the central reserve; the continuous hard shoulder (capable of bearing the weight of the heaviest vehicle) is for emergencies and no other purpose.

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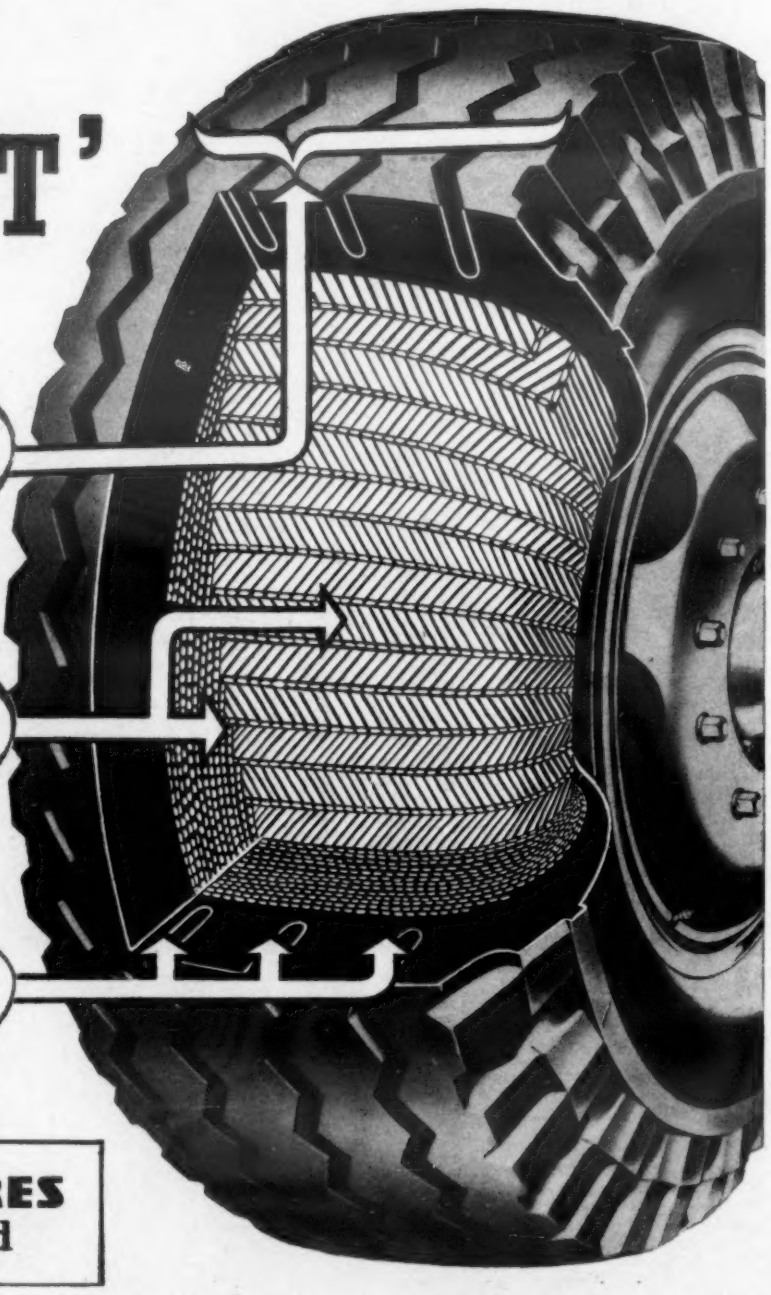

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More Road Contact, Greater Stability
Less Wear

Safer, Stronger Body ...
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Cord Body Prevents Growth, Tread
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Deeper non-skid pattern
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Experience Counts—
45 Factories throughout the world.
Firestone total sales exceed £1,000,000 per day.

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—consistently good

SOCIAL AND PERSONAL

English Electric Changes

EXECUTIVE changes are to be made in the traction organisation of the English Electric Co., Limited, following the retirement of Mr. C. M. Cock as general manager of the traction department at the end of this year. A new appointment of Mr. H. J. H. Nethersole as general manager of traction has been made. Mr. Nethersole, who has been managing director of the English Electric Co. of South Africa (Pty.), Limited, since 1947, will relinquish this post, but will continue as a member of the board of the South African company when he takes up his new duties. He will be succeeded as managing director in South Africa by Mr. R. B. Price, who is already a director of the South African company and general manager of the Benoni works.

* * *

Mr. E. R. Williams, M.B.E., M.Inst.T., who has been appointed to the post of traffic manager, Sheffield, Eastern Region, B.R., joined the London and North Eastern Railway as a traffic apprentice in 1934 from Oxford University, where he took an honours degree in modern languages. He became a relief stationmaster in 1937 and assistant to the district manager, Peterborough, in 1938. During the war he served in the Royal Engineers (Movement and Transportation), attaining the rank of lieutenant-colonel and being awarded the M.B.E. and the emergency reserve decoration. After the

Mr. E. R. Williams

war Mr. Williams held appointments as goods agent, Chelmsford, assistant to district operating superintendent, Stratford, and assistant general agent for British Railways in France before going to Sheffield in 1953 as district passenger superintendent. He has held the post of district commercial officer, Sheffield, since 1957. Mr. Williams has this year been chairman of the Sheffield and district section of the Institute of Transport. He is a member of the Sheffield Chamber of Commerce, of the Sheffield Joint Omnibus Committee and has also served on the standing joint committees of the Yorkshire Traction and East Midland bus companies.

* * *

Mr. E. R. Brown, M.I.Mech.E., M.I.Loco.E., works manager, Horwich, has been appointed works manager, Crewe, London Midland Region, B.R.

* * *

Mr. B. A. Tunks has been made deputy general manager (marketing), Mr. E. C. Nickless assistant general manager (marketing) and Mr. C. P. Dalton manager, co-ordination and economics department, of the Esso Petroleum Co., Limited.

* * *

The Institute of Navigation has elected Wing Commander E. W. Anderson, O.B.E., D.F.C., A.F.C., F.I.N., F.R.Met.S., as its new president. The election took place at the annual general meeting, with H.R.H. the Duke of Edinburgh in the chair. Wing Commander Anderson is project manager in the Bracknell division of the Sperry Gyroscope, Limited.

* * *

Mr. G. W. Miller, who has been appointed district motive power superintendent, Derby, London Midland Region, B.R., was educated at King Edward VII School, Lytham, and served his apprenticeship at Horwich locomotive works from 1923 to 1928. He became running shed foreman in 1932, and was subsequently made assistant district locomotive superintendent, Bank Hall (1936), Crewe (1942), and district motive power superintendent at Skipton (1947) and Bescot (1951.)

Mr. G. W. Miller

* * *

Mr. J. Harrison has been appointed managing director of Atlas Copco (Great Britain), Limited, in place of Mr. J. C. Greig, who has resigned.

* * *

Mr. J. T. Turner has been re-elected chairman of the vehicles committee of the National Road Transport Federation, and Mr. K. C. Turner was unanimously elected chairman of the highways committee. He is president-elect of the T.R.T.A.

* * *

Mr. W. A. Galbraith, B.A. (Eng.), M.A. (Cantab.), A.M.I.Mech.E., has been appointed general sales manager of the Yale and Towne British materials-handling division at Wednesfield. Mr. Harry Davis, hitherto assistant sales manager (United Kingdom), has been appointed sales manager (United Kingdom) and Mr. M. J. Stuart, assistant sales manager (export), has been appointed sales manager (export).

* * *

Mr. G. C. Gold, A.M.I.M.E., M.I.Loco.E., formerly assistant mechanical and electrical engineer, Eastern and North Eastern Regions, has been appointed mechanical and electrical engineer (workshops), Eastern Region, B.R. He will continue to be located at Doncaster. Mr. C. F. Rose, B.Sc.(Eng.), A.M.I.Mech.E., M.I.Prod.E., M.I.Loco.E., formerly production and works assistant to the chief mechanical and electrical engineer and the carriage and wagon engineer, has become mechanical and electrical engineer (development), located in London.

Mr. W. E. W. Nicolls, B.Sc., has been appointed to the position of chief engineer for overseas operations of C.A.V., Limited. He has been chief development engineer since 1948.

* * *

Mr. Harry Bleach has retired after 17 years as clerk to the Northern area Licensing Authority and chief assistant to the Traffic Commissioners. He has held these posts since 1943.

* * *

Mr. James E. Robinson, M.I.Mech.E., M.I.Mar.E., chief engineer of Hepworth and Grandage, Limited, has been appointed to the board. He will also continue in his capacity as chief engineer.

* * *

Mr. W. Longworth, who has been assistant engineer with Bolton Corporation Transport Department since 1956, has been appointed to a similar position with the Trent Motor Traction Co., Limited.

* * *

Mr. E. H. Ker, M.B.E., A.M.I.M.E., M.I.Loco.E,. formerly assistant to motive power superintendent (maintenance), Eastern Region, has been appointed locomotive engineer in the department of the chief mechanical and electrical engineer, Eastern Region, B.R.

* * *

The Eastern Region of British Railways announces that Mr. R. B. Temple, traffic manager, Sheffield, Eastern Region, B.R., will retire on December 31, and Mr. E. R. Williams, M.B.E., M.Inst.T., at present district commercial officer, Sheffield, has been appointed to succeed him.

* * *

Mr. F. H. Beasant, B.Sc., M.I.Mech.E., M.I.E.E., M.I.Loco.E., has returned to England from Australia to take up an appointment as deputy manager of the traction division of the Brush Electrical Engineering Co., Limited, a member of the Hawker Siddeley group.

* * *

Mr. R. Carlisle, M.Inst.T., has been appointed to the position of public relations and commercial officer, Ulster Transport Authority. Mr. Carlisle has had a long association with public transport in the province, commencing in 1927 with the former Belfast Omnibus Co., Limited. He was in from the start in 1935 of the Northern Ireland Road Transport Board and on the establishment of the Ulster Transport Authority in 1948 was specially occupied on the financial side during the early years, afterwards transferring to the traffic side. The Authority had in mind when making this important appointment the desirability, if not the obvious need, for establishing and maintaining better relations between it and the public, including traders, local bodies and others, on whose activities efficient public transport services have an important bearing, and it is confidently hoped that Mr. Carlisle may be able to bring about this result.

Mr. R. Carlisle

* * *

Miss H. M. Evans has been appointed welfare officer (women), London Midland Region, B.R.

* * *

Mr. J. Hancock has been appointed commercial officer (traffic headquarters), Eastern Region, B.R. (located at Liverpool Street), in succession to the late Mr. F. G. Crabb.

* * *

We record with regret the death of Mr. H. R. Turner, former chairman and managing director of Ferodo, Limited. He was 75. He was also a former director of Turner and Newall, Limited.

* * *

The Queen has graciously approved of the Institution of Naval Architects being henceforth known as the Royal Institution of Naval Architects. The use of this title is authorised to come into effect immediately.

* * *

Mr. Eric Turner is to join the Birmingham Small Arms Co., Limited, as chief executive on January 1 next year and he will become deputy chairman. The group includes Transport Vehicles (Daimler), Limited.

* * *

Mr. A. J. White, assistant general manager, Eastern Region, British Railways, is retiring this month at the age of 61 for health reasons, but he will continue to assist in an advisory capacity in connection with reconstruction projects, notably the replanning of Kings Cross.

* * *

In a paragraph on this page last week it was stated that Mr. Airey Neave would continue in office as Joint Parliamentary Secretary to the Ministry of Transport in the House of Commons. The holder of this office is Mr. John Hay. As already indicated, Lord Chesham serves as Joint Parliamentary Secretary in the House of Lords.

* * *

To achieve closer integration of C.P.R. railway, airlines and steamship services, all its passenger traffic matters in Europe will in future be under the jurisdiction of Mr. T. G. Hughes, who has been appointed European passenger manager. Mr. R. J. Harden becomes assistant European passenger manager.

* * *

Three complementary papers on "Fares Structures" will be presented for discussion at a meeting of the Institute of Transport on November 9 in the Jarvis Hall, 66 Portland Place, W.1. "Air" will be dealt with by Mr. J. L. Grumbridge, general manager (commercial), British European Airways; "Rail" by Mr. A. W. Tait, assistant general manager, Eastern Region; and "Road" by Mr. A. F. R. Carling (a vice-president), executive, British Electric Traction Co., Limited.

* * *

Mr. A. F. Harvey, M.I.E.E., M.I.Loco.E., a member of the traction department at the Rugby works of the A.E.I. traction division, retired on October 31. Mr. Harvey was apprenticed to the former British Electric Plant Company at Alloa. Joining B.T.H. in 1920, he went to Buenos Aires as technical assistant to the superintendent of electrification, Central Argentine Railways. Later he was with the London Electric Railways and rejoined B.T.H. in 1936 in the traction department at Rugby works (now part of the A.E.I. traction division).

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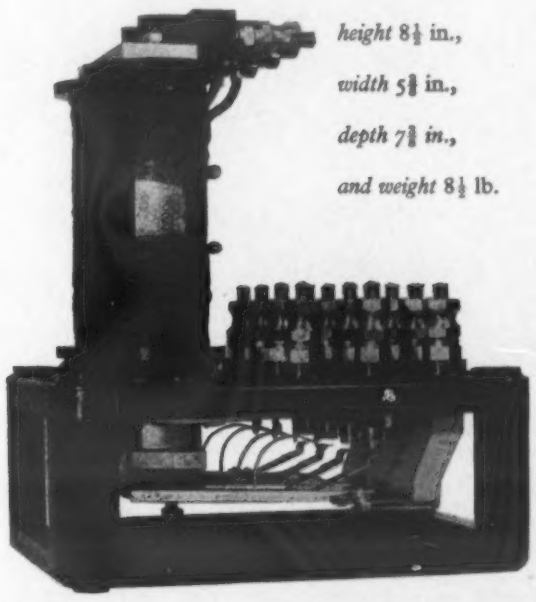
TYER'S FOUR ARM TYPE G2/L

conforming, in all respects, to the British Standard's specification No. 1659 of 1950 with all material and workmanship of the highest quality



height 8½ in.,
width 5⅛ in.,
depth 7⅛ *in.*,
and weight 8½ lb.

coil windings: 250 ohms or 1,000 ohms, or to particular requirements.

contacts { front, 50% silver, 50% graphite
arm, fine silver
back, fine silver

contact clearances { Class.A. 0.04 in.
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contact rating { Class.A. 5 amp at 50 volts.
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casework: moulded two-piece unit with four rectangular glass sides. The whole unit being so cased to ensure the contact chamber being proof against moisture.

terminals: O.B.A. nut type, to B.S.S. 442 or can be supplied to A.R.A. standards. Shrouds for terminals catered for or short stems for detachable coupling unit.

terminal markings are moulded in relief: coils R.1 and R.2. A. arm. F. front contact and B. back contact.

packing: cartons designed to contain the unit for supply and storing.

Similar four arm units as Track type relays G2/T to B.S.S. 1659 of the 2.25 or 9 ohms type.
Tyers "Block" relay unit, type G2/B, of similar design, caters for all two, three or four arm contact requirements,

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IMPORTANT CONTRACTS

Chinese Order British Cranes

As a result of an approach made to the company by the Chinese some months ago, R. H. Neal and Co., Limited, Ealing and Grantham, has been awarded contracts by the Chinese People's Republic worth more than £300,000 for mobile cranes. The total order is believed to be the largest placed by the Chinese authorities for this class of equipment in West Europe. The cranes are of 6 and 15 tons capacity (British rating) and will most likely be used principally in various ports. Future business with China, the company thinks, offers good long-term prospects.

London Midland Region Contracts

Recent contracts placed by the London Midland Region of British Railways include:

Rubery Owen and Co., Limited, Darlaston, for supply, fabrication and delivery of steelwork for superstructure of 11 bridges on Trent Valley line.

Leonard Fairclough, Limited, Adlington, for reconstruction, adding new span and widening for the Ministry of Transport of bridge on Grand Junction line between Bushbury and Stafford.

Inertia Starters in "Oriana" Lifeboats

Simms Motor Units, Limited, is supplying a number of its inertia starters for the diesel-engined lifeboats of the new Orient Line ship *Oriana*, which was launched by Princess Alexandra at the Barrow-in-Furness yard of Vickers-Armstrongs on November 3. The Simms inertia starter enables diesel engines to be started by hand in about 10 seconds, dispensing with the need for electric batteries and starter motor.

Jet Parks at London Airport

New parking and servicing facilities to accommodate the big jet aircraft being handled in increasing numbers at London Airport are to be provided by Taylor Woodrow Construction, Limited. The contract, awarded by the Air Ministry Works Directorate and valued at over £340,000, involves the construction of aircraft standings, road, compass base and taxiway in the north-eastern area of the airport. Work started on October 19 and is due for completion in 18 months.

North Eastern Region Contracts

Recent contracts placed by the North Eastern Region of British Railways include:

Brown and Tawse Plant, Limited, Manchester, for six Hydrocon Highlander rotary cranes for use in the chief civil engineer's department.

Steels Engineering Products, Limited, Manchester 12, for four diesel-electric rail cranes.

Otis Elevator Co., Limited, Leeds, for a lift for the regional headquarters offices at York.

The Electronic Construction Co., Limited, Wolverhampton, for four 65-kVA transformers for Tweedmouth and Alnmouth.

Holmpress Piles, Limited, Leeds, for piles for the Centre Pier of bridge over the Leeds—Liverpool Canal near Leeds City Station.

Sperry Hydraulics for the VC10

Sperry Gyroscope Co., Limited, has been chosen by Vickers-Armstrongs (Aircraft), Limited, to supply Vickers hydraulic pumps and motors for the new VC10 long-range jet air liners for B.O.A.C. The reliability of Vickers pumps, motors and ancillary equipment, established over millions of operational flying hours in civil and military aircraft, has been a major feature in the choice. Features common to both pumps and motors are long overhaul life, easy interchange and exceptional performance. Vickers hydraulic units are designed by Vickers, Inc., of Detroit, and are manufactured under licence in Britain by Sperry Gyroscope Company.

Canadian Order For Tangyes

Tangyes, Limited, has been awarded a contract for the supply of hydraulic equipment to Canada Iron Foundries, Limited, which company is to manufacture the tunnelling shields to excavate the Bloor University Avenue subway in Toronto. The equipment consists of cylinders and rams, erector arms and hydraulic pumps. The order, which is valued at 600,000 dollars, has been secured against keen international competition on both price and delivery after very intensive activity by the Tangye selling organisation in Canada, namely Tangyes of Canada, Limited, Montreal.

TENDERS INVITED

THE following items are extracted from the Board of Trade Special Register Service of Information. Inquiries should be addressed, quoting reference number where given, to the Export Services Branch, Board of Trade, Lacon House, Theobalds Road, London, W.C.1.

November 16—India.—National Coal Development Corporation for eight 45-h.p. WHEELED TRACTORS fully equipped for road use to draw 4- to 5-ton trailers. Tenders to the Purchase Officer, N.C.D.C., Limited, 1 Council House Street, Calcutta 1. (ESB/23309/59.)

November 18—Union of South Africa.—Union Tender Board for one ARTICULATED TRACTOR and 35-ton capacity LOW-BED SEMI-TRAILER complete. Tenders to the Secretary, Union Tender Board, 291 Bosman Street, P.O. Box 371, Pretoria. (ESB/24741/59.)

November 20—Formosa.—International Co-operation Administration for nine 3-ton LORRIES, three 2-3 ton WINCH LORRIES with DERRICKS and two ½-ton PICK-UP TRUCKS. Tenders to the Central Trust of China, Purchasing Department, 68 Yen Ping Nan Road, Taipei, Taiwan. (ESB/25546/59/ICA.)

November 20—Union of South Africa.—Transvaal Provincial Administration for eight heavy CRAWLER TRACTORS, with hydraulic angledozers and rear-mounted double-drum cable winches. Tenders to the Chairman, Transvaal Provincial Tender Board, P.O. Box 1040, Pretoria. (ESB/24671/59.)

November 23—Pakistan.—International Co-operation Administration for 12 heavy-duty diesel-engined LORRIES of about 5-ton capacity, with spares. Tenders to the Director-General, Department of Supply and Development, Frere Road, Karachi. (ESB/25962/59/ICA.)

November 24—India.—Madras Port Trust for about 77 cast-steel BOLLARDS for use in Madras Harbour at ship berths, capable of withstanding a pull of 100 tons. Tenders to the Chief Engineer, Madras Port Trust, Madras. (ESB/23640/59.)

November 25—Union of South Africa.—Union Tender Board for three or four 44-seat diesel-engined BUSES, for assembly in South Africa. Tenders to the Secretary, Union Tender Board, 291 Bosman Street, P.O. Box 371, Pretoria. (ESB/25206/59.)

An agreement has been reached between Auto Diesels, Limited, and Frederick Braby and Co., Limited, under which Auto Diesels and its subsidiaries, Diesel Equipment, Limited, and Norman Industrial and Marine Co., Limited, become members of the Frederick Braby group. Messrs. Frederick and Cedric Braby have joined the Auto Diesels board and Messrs. A. J. W. Green and L. W. Parncutt have been elected to the Braby board.

SHIPPING AND SHIPBUILDING

Tanker May be First Nuclear Ship

SOME progress towards the development of an economic nuclear powered ship was indicated at the Yarrow shipyard in Glasgow last week by Rear-Admiral G. A. M. Wilson, director, nuclear propulsion, at the Admiralty, when he spoke on the new work being done at Yarrow. This yard operates the Yarrow-Admiralty Research Department, formed in 1946, working an a contractual basis and ensuring the Admiralty the most complete information on commercial and technical developments. A special team of qualified experts is now engaged on the nuclear project, assessing the eight designs offered earlier this year by nuclear groups.

It might be 10 years before an economic commercial nuclear propelled ship, possibly a tanker, is launched and operating, Rear-Admiral Wilson said, but equally it might well be that construction would be started before that time, to allow theoretical ideas to be backed by working experience. Experience was necessary to back up research. The Y.-A.R.D. has concentrated on a nuclear system which will allow economic operation of a large tanker, probably of 45,000-65,000 tons. The navy will probably undertake the building of a large naval replenishment tanker, capable of further development, this being the type of ship nearest to the commercial needs of the country. It was not yet certain whether the navy version or a merchant tanker would be at sea first.

Calls at Tahiti

SEVERAL New Zealand Shipping passenger liners will in future call at Papeete, Tahiti, on their transpacific route, and will omit Pitcairn Island. The *Ruahine*, which sailed from London on October 23, is making an experimental voyage on the new route.

Flushing—Shoreham Service

THE Holland Steamship line, of Amsterdam, intends to extend its regular services between Amsterdam and British ports by opening a weekly service between Flushing and Shoreham on November 11. The new service is for the convenience of shippers in southern Holland and is designed with a view to the transport of fruit, potatoes and other vegetables to markets in southern England. Sailings are scheduled for Wednesdays with arrivals in Shoreham on Thursdays.

Turkish Ferries Ordered

THE Turkish State Seaways and Harbour Administration has placed an order for nine passenger ferries, worth about £3,500,000 with the Fairfield Shipbuilding and Engineering Co., Limited, Govan. They are to be 15-knot steamers of about 1,000 tons gross with twin propellers. The contract includes the propelling machinery and full equipment, and will take about two years to complete. Each ferry will carry 2,100 passengers in two classes, with saloon accommodation for 1,200. They will be about 210 ft. long with a 36-ft. beam. Operating on the Sea of Marmora and the Bosphorus, they will link the European and Asiatic portions of Istanbul, over one of the busiest waterways in the world. The fleet of ferries on this service transports about 85 million passengers a year.

FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

Tube Investments

Group net profit of Tube Investments, Limited, in the year ended July 31, was £6,458,460 (£6,003,420), arrived at after taxation and depreciation. Ordinary dividend is 20 per cent.

A.E.C. (Sales)

The name of A.C.V. Sales, Limited, has been changed to A.E.C. (Sales), Limited. The management will continue unchanged.

John I. Thornycroft

In the year ended July 31, 1959, John I. Thornycroft and Co., Limited, suffered a group trading loss of £56,347 (profit £411,957). Ordinary dividend is 6 per cent (7½ per cent, plus special distribution from capital profits of 1 per cent). Trading loss is after depreciation £90,416 (£151,859).

Rootes Motors

Applications have been received for a sum in excess of £50 million for the recent offer of £3,500,000 5½ per cent debenture stock 1984-89 of Rootes Motors, Limited. The recent results published for the year ended July 31 showed consolidated net profit, after taxation and depreciation, of £2,095,609 (£1,208,753) and the ordinary and A ordinary dividends are 16 per cent (4 per cent).

David Brown in Spain

A new Spanish company, to be known as David Brown Engranajes, S.A., will undertake manufacture of commercial-vehicle gearboxes and gears of David Brown design in a new factory at present under construction at Villaverde, near Madrid. The formation of this company is the culmination of months of negotiation between Barreiros Diesel, S.A., the largest manufacturer of diesel engines in Spain, and the David Brown Corporation, Limited.

Ransomes Sims and Jefferies: Hyster

An arrangement for common marketing of Hyster industrial trucks and Ransomes electric trucks is announced in Great Britain by Hyster, Limited, Glasgow (a subsidiary of the Hyster Company, of Portland, Oregon, U.S.A.), and Ransomes Sims and Jefferies, Limited. Basically it provides for Ransomes to be the sole manufacturer of electric trucks and Hyster to be sole manufacturer of internal combustion-engined trucks, all for marketing exclusively by Hyster. Both companies will collaborate in design and engineering to the fullest extent. There is no financial link-up between the two companies.

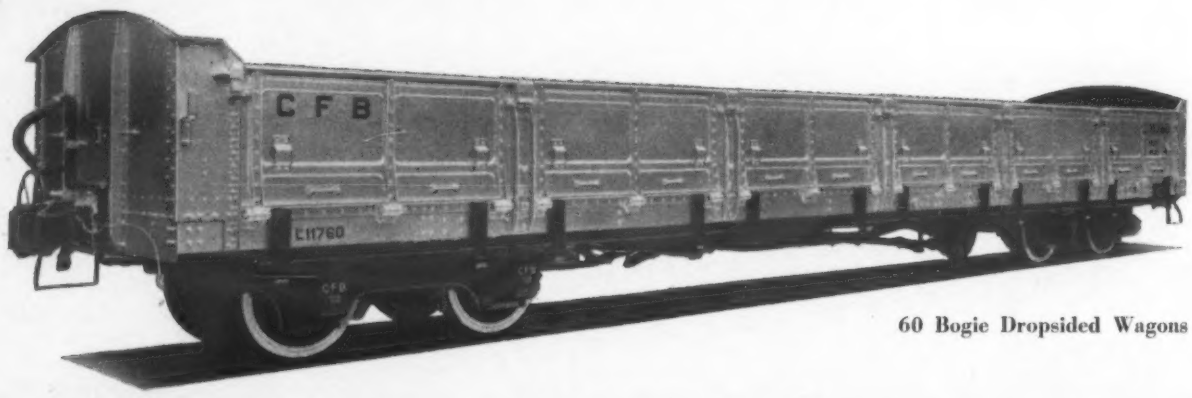
MARSHALL-MULLINER AGREEMENT

IT is announced that Marshall Motor Bodies, Limited, of Cambridge, has entered into an agreement with Mulliners, Limited, of Birmingham, in order further to expand the production of Mulliner p.s.v. bodies which in future will be known as Marshall-Mulliner buses.

While the sales organisation will remain centred on Mulliners at Birmingham, Mr. D. J. A. Davies is also joining Marshall Motor Bodies as Marshall-Mulliner bus sales manager and commenced this appointment on November 2.

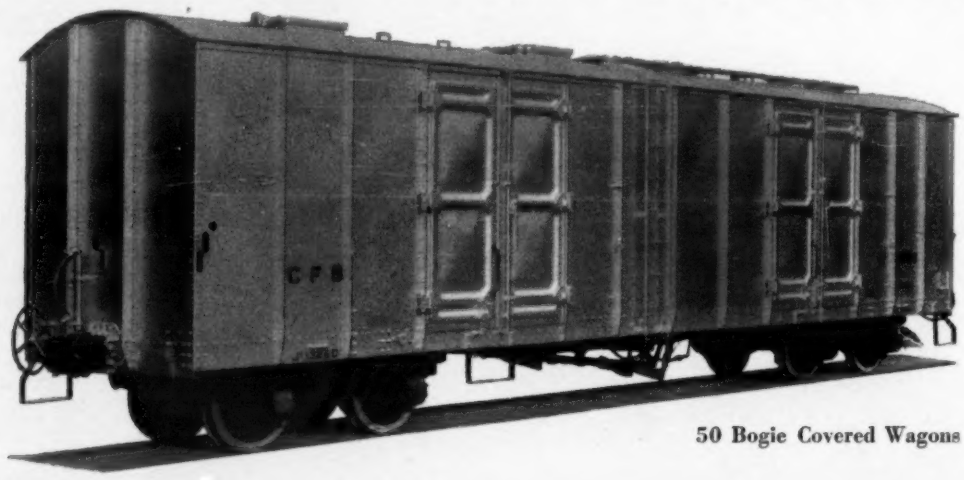
METRO-CAMMELL

BOGIE WAGONS FOR PORTUGUESE WEST AFRICA



60 Bogie Dropsided Wagons

TWO TYPES of Bogie Wagons are NOW being delivered to the BENGUELA RAILWAY



50 Bogie Covered Wagons

METROPOLITAN-CAMMELL CARRIAGE & WAGON CO. LTD.
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